

Mu'tah University
Deanship of Graduate Studies

Factors affecting Electronic Data Interchange Implementation and its impact on Marketing Performance

The case of Jordanian Commercial Banks

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DEDICATION

To my only love in my life which I believe that there's no other love like his love, to my father.

To the endless love which made me what I am, to my mother.

To my second country Jordan and my home Algeria with love.

Madjida Salah Al -Arabi Bensalah

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Abbreviations

ACH: Automated Clearing House
AMOS: Analysis Of Moment Structure
GDP: Gross Domestic Product
EDI: Electronic Data Interchange
EFT: Electronic Funds Transfer
ICT: Information and Communication Technology
IOIS: Inter-Organizational Information System
IS: Information System
IT: Information Technology
ITCA: Information technology for competitive advantage
ROI: Return On Investment
ROS: Return On Sales
SEM: Structural equation modeling
WCM: World Class Manufacturing
WWW: World Wide Web

Abstract

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This study aimed to test a model which describes the factors affecting the EDI implementation, and its impact on marketing performance in Jordanian commercial banks.

In this study the researcher focus on electronic data interchange between banks through testing the effect of set of factors on EDI implementation. These factors are: perceived benefits, top management support, technical infrastructure, external pressure, and organizational characteristics. Data were collected using a questionnaire consisted of 31 “likert” type items from a convenience sample of 227 respondents, data were analyzed using AMOS 16.0, to determine the interactions between the various factors. The results support the direct effect of perceived benefits, top management support, and external pressure on EDI, and indirect effect of these factors on marketing performance, and the positive impact of EDI implementation on marketing performance. Findings also indicated that there are no direct effect of technical infrastructure and organizational characteristics on EDI implementation and no indirect effect of these factors on marketing performance. The study has suggested some recommendations, and also some directions for future research were proposed.

الملخص

العوامل المؤثرة على تطبيق تبادل البيانات الالكتروني و أثره على الاداء التسويقي

دراسة حالة البنوك التجارية الأردنية

ماجدة صالح العربي بن صالح

جامعة مؤتة، 2009

هدفت هذه الدراسة إلى اختبار نموذج يصف العوامل المؤثرة على تطبيق تبادل البيانات الإلكتروني وأثر ذلك على الأداء التسويقي في البنوك التجارية في الأردن. وقد ركز الباحث في هذه الدراسة على تبادل البيانات الإلكتروني بين البنوك وذلك من خلال اختبار أثر مجموعة من العوامل على تطبيق تبادل البيانات الإلكتروني، وهذه العوامل هي: المنافع المدركة، دعم الإدارة العليا، البنية التحتية التكنولوجية، الضغوط الخارجية والخصائص التنظيمية. تم جمع البيانات من خلال عينة ملائمة بلغت 227 مستجيب وذلك باستخدام استبانه أعدت خصيصا لهذا الغرض تكونت من 31 عبارة على مقياس ليكرت الخماسي. تم اختبار العلاقات بين متغيرات النموذج باستخدام نموذج المعادلات البنائية (AMOS 16.0).

وقد أشارت النتائج إلى وجود أثر إيجابي ومباشر للمنافع المدركة، دعم الإدارة العليا والضغوط الخارجية على تطبيق تبادل البيانات الإلكتروني، وأثر إيجابي غير مباشر لهذه العوامل على الأداء التسويقي للبنوك. كما أن هناك أثر إيجابي لتطبيق تبادل البيانات الإلكتروني على الأداء التسويقي. أما فيما يتعلق بالعوامل الأخرى (البنية التحتية التكنولوجية والخصائص التنظيمية) فقد أشارت النتائج إلى عدم وجود أثر مباشر لهذه العوامل على تطبيق تبادل البيانات الإلكتروني وكذلك عدم وجود أثر غير مباشر لهذه العوامل على الأداء التسويقي للبنوك. كما قدمت هذه الدراسة عددا من التوصيات و بعض التوجيهات للأبحاث المستقبلية ذات الصلة بموضوع البحث

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Chapter One
Introduction

1.1 Introduction

Implementation of Information and Communication Technology (ICT) in banking sector is growing rapidly (Afrouz, 2007). In Jordan as a developing country, there is a high interest in using Information Technology (IT) on different businesses especially in banking sector. The adoption of Information and Communication Technology (ICT), and more precisely the Electronic Data Interchange (EDI) Implementation in this sector has become an obligation rather than a choice.

The new trend of using electronic innovations on banking industry appeared to spread on 1980s by advertising the banking services on internet (Al Harthi, 2004). Today's banking sector is dynamic and constantly changing. Information and its swift communication, and Electronic Data Interchange (EDI) systems are vital to competitive vigor of data transferring between banks. Today, more than ever before, the success and high performance of organizations, particularly the commercial banks, are dependent upon rapid access to accurate, and up-to-date information especially data and information exchange between the employees in the same bank or between the banks' employees.

Consequently, most of Jordanian commercial banks are continually looking for alternative ways to improve marketing performance through improving the quality of products and services, reducing cost, entering new market, and reinforcing the relationship with customers.

This study is concerned with the Electronic Data Interchange (EDI) applied in commercial banks in Jordan, since there are important factors affecting the implementation of the EDI system which improve the banks marketing performance.

The objective of this study is to investigate some selected factors affecting the EDI Implementation and the impact of using this new electronic way of communication on marketing performance in Jordanian commercial banks that had already adopted EDI system.

1.2 Problem Statement

Information and Communication Technology (ICT) is becoming an important factor in the future development of financial services industry, especially banking sector (Goldmann, 2008). Banks and other financial institutions in Jordan are one of the largest investors in the fields of Information and Communication Technology (ICT) and more precisely the Electronic Data Interchange (EDI) implementation.

Jordanian commercial banks need more than any other time to activate, develop, and innovate new techniques to enhance the relationship

between themselves and the customers. However, the cost of investment in Information and Communication Technologies is relatively high. Hence, the Jordanian Commercial Banks should be sure that there is a good impact of these costly investments on Marketing Performance.

Based on the forgoing, the major problem that the study tries to explore can be expressed in the following question:

What are the factors that affect the Implementation of Electronic Data Interchange (EDI) by Jordanian commercial banks and its impact on banks' Marketing Performance?

1.3 Importance of the study

The importance of this study stems from the following:

1. Over years, individuals and organizations in Jordan and all over the world have invested significantly in Information and Communication Technology (ICT). This has created almost a silent revolution on all aspects of the human life so it is predictable that the next generations will witness a further boost in high tech and knowledge-oriented endeavors in Jordan.
2. The size of service sector and its contribution to most of world's economies is in rapid increase. In regard to Jordan where the economy is considered as a service economy in the first place; the percentage of service sector contribution to the working force is about 72% (Siam, 2006).
3. Recently, Jordanian banks have spent millions of dinars on new electronic channels, and also have invested in expanding and improving the IT systems.
4. The banking industry is highly competitive. Thus, changing needs and new technologies are brought together to revolutionize the way in which banking business is conducted. Modern banking business is characterized by ever-increasing global competition, and ever-increasing customer expectations. So, Banks have used EDI to enhance and attract a large number of customers through services quality.
5. This study focuses on relatively unexplored phenomenon in Jordan. Unfortunately, a few studies have been conducted in Jordan regarding this subject. Therefore, the current study represents a starting point for other researchers to study the EDI implementation in Jordan.
6. The result of this study will be useful for academicians; they can gain insights and suggestions for future research.

1.4 Objectives of the study

The aim of this study is to investigate some factors that influence

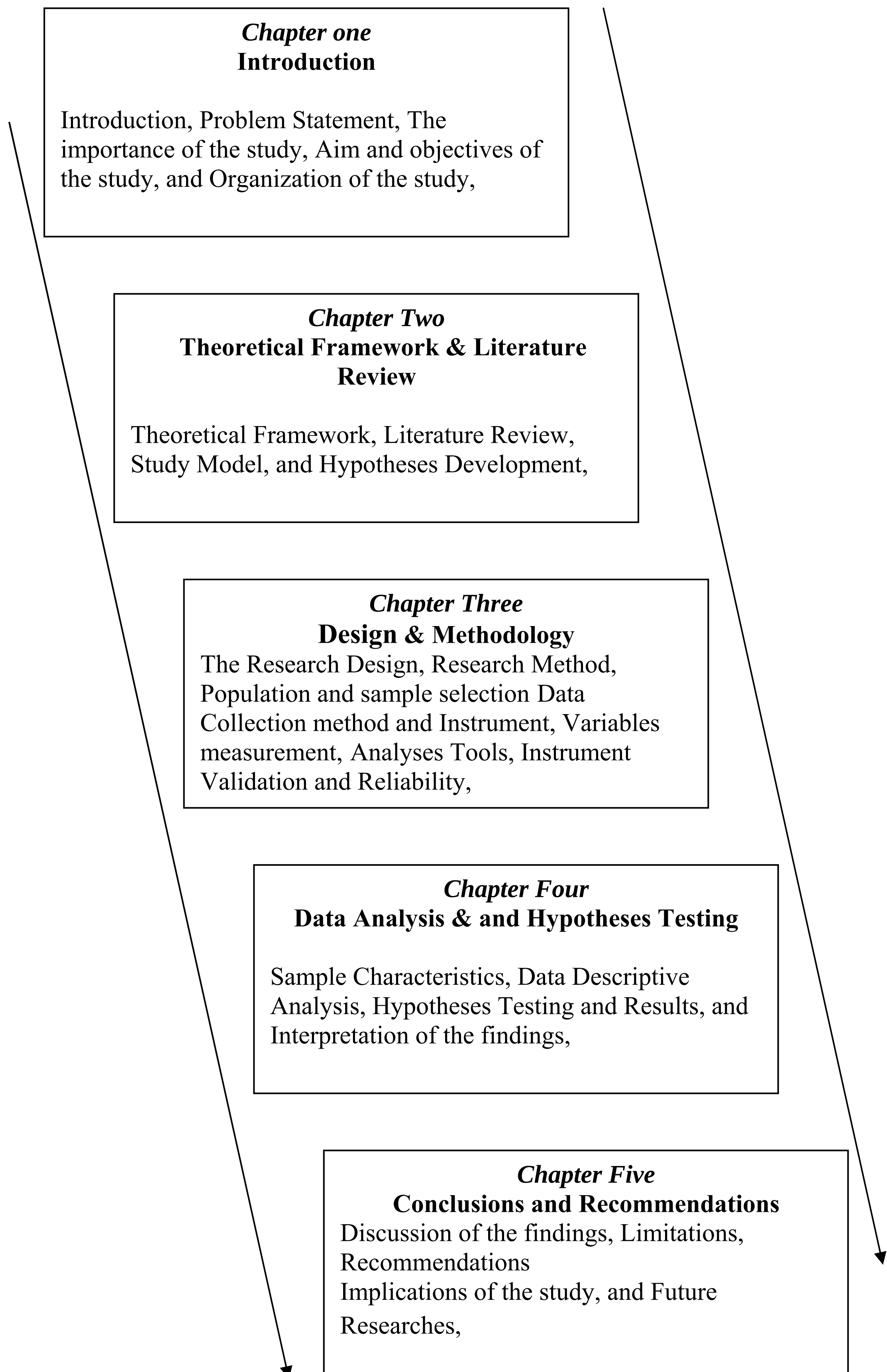
EDI implementation which achieves high Marketing Performance. The researcher tries to accomplish this aim through the following objectives:

1. Providing an overview of EDI implementation in Jordanian commercial banks.
2. Investigating the various factors affecting the EDI implementation in the Jordanian commercial banks.
3. Studying and analyzing factors affecting Marketing Performance indirectly through EDI implementation.
4. Studying and analyzing the impact of EDI implementation on Marketing Performance.
5. Providing some recommendations to decision makers relating to the best approaches to support the implementation of EDI in Jordan.
6. Suggesting some recommendations and to increase the banks marketing performance based on the result of study.

1.5 Organization of the study

This study consists of five stages presented in five chapters. The flow of the stages is showed in Figure (1.1):

Figure (1.1)
Study Outline



The first chapter presented an overview of EDI implementation, the research aims and objectives to be addressed in this study, and an overview of the approach to be undertaken.

The second chapter reviews a conceptual foundation for EDI implementation including definition, benefits, components, barriers and motives, and the relationship between EDI implementation and marketing performance. Then, the recent previous studies will be addressed. Finally, the model of the study and the hypotheses will be followed.

The third chapter evaluates various research methodologies to deal with the research problems and to meet the research objectives. This chapter outlines the methods and procedures used in the study. The research design, population and sample, data collection, study instrument, and statistical techniques. In addition, reliability and validity will be described in detail. The research design chosen enabled the researcher to achieve the objectives of the study.

The fourth chapter discusses the responses' frequencies in terms of the respondent's demographic characteristics. Then it will present the descriptive analysis for the collected data, and this will be followed by hypotheses' testing and the significance of the variables will be demonstrated.

The major finding of this study will be discussed in the fifth chapter which concludes the linkage between the research problems, theories, and the findings of the study. Research and practical implications and limitation of this study will be presented. Suggestions for further research opportunities will be recommended.

Chapter Two
Theoretical Framework and literature review

2.1 Theoretical Framework

It is increasingly clear that the full benefits of EDI materialize only with the widespread implementation of the technology. As predicted by Microsoft's Bill Gates, banks are dinosaurs and will be replaced by microcomputers (Yang et al, 2006). Different countries have different perceptions of the application of EDI, and differences in political, economic, technological, and competitive environments pose distinctive problems in the implementation of EDI (Ngai and Gunasekaran, 2004). It is therefore important to study the implementation of EDI systems in different countries, recognizing that the experiences of a particular country like Jordan will benefit other countries of a similar profile. Also the results of this study which apply on banking sector can be beneficial to other sectors especially small and medium enterprises (SME) in Jordan.

2.1.1 Jordan: An overview

Jordan is a small country with limited agricultural, water, and domestic energy resources deficiencies that have hampered economic development and improvements in the standard of living. Over the past decade, however, the government has made an effort to highlight Jordan's positive economic attributes, such as its relatively well educated and skilled labor force and its stability compared with many of its neighbors. Since the succession to the throne of King Abdullah in 1999, the government has attempted to undertake broad economic reforms with a strong emphasis on economic liberalization and privatization, thereby diminishing to some degree the state's previously heavy involvement in the economy and boosting the private sector.

This newfound commitment to macroeconomic stability and private investment fueled economic growth is a departure from Jordan's past economic history. In large part because of increases in government spending and subsidies, as recently as 1989 Jordan suffered from double digit inflation rates, a sharp devaluation of its currency, persistently high budget deficits, and large increases in its external debt. But from 1989 to 2004, the government closely adhered to International Monetary Fund supported readjustment programs (six such programs), successfully achieving sustainable growth, controlling inflation, and reducing its deficit. These reforms, in tandem with improved international political standing, have allowed Jordan to enter into several important free-trade agreements with such markets as the United States and the European Union and to join the World Trade Organization.

The World Bank classifies Jordan as a “lower middle-income country.” Despite the successes of the past decade, the economy is still vulnerable to relatively high levels of poverty and unemployment and to the endemic instability of the wider region. Services still overwhelmingly dominate the economy, and despite the recent growth of the manufacturing sector, looming competition from Asia could undermine recent advances. In 2005 the government initiated an ambitious National Agenda for Reform for the coming decade. On the economic front, the agenda commits the government to continuing the policies of recent years’ job creation, increasing per capita gross domestic product (GDP) as well as overall GDP, and reducing the debt-to-GDP ratio.

2.1.2 Banking sector in Jordan

The banking and financial services sector is reasonably advanced, and foreign institutions are increasingly entering the Jordanian market. Jordan’s Arab Bank, however, is still the dominant player in the sector, holding an estimated 60 percent of all assets. The Housing Bank for Trade and Finance is the second largest institution in the sector, followed by seven other commercial banks, five investment banks, two Islamic Banks, and eight foreign banks. Efforts by the Central Bank of Jordan to encourage mergers among the smaller domestic institutions have been hampered by the traditional family-oriented ownership of many of the banks, reinforced by the conservatism historically exhibited by the Jordanian banking sector. In addition to the domestic and foreign banks, several credit institutions provide specialized loans for housing, agriculture, industry, and rural and urban development (HTML1).

2.1.3 EDI in Jordan

Electronic Data Interchange (EDI) actually emerged in late 1960s when transportation companies were looking for ways to alleviate delivery delays that resulted from large volumes of paper documentation. The use of EDI however became popular and widespread in late 1980s and early 1990s, currently; many large organizations in US, Canada, and Europe are using EDI to support their trading activities. The adoption of EDI has also progressed rapidly in Australia (Seyal, and Rahim, 2006).

Unfortunately, when the researcher first began to undertake research into Electronic Data Interchange in Jordan, there was little published material available on the subject.

2.1.4 EDI in Jordanian banking sector

2.1.4.1 Electronic Funds Transfer (EFT)

Electronic funds transfer (EFT) is the banking equivalent of EDI. Banks and other financial institutions transfer electronic checks and related

payment information to each other, crediting and debiting customer accounts. EFT transactions are generally exchanged between banks through some form of network or funds transfer system. The most commonly used network is the Automated Clearing House (ACH) Network. As business demands increase and technology improves, several bank-to-bank EFT formats have been developed for the ACH network. The main difference between the formats is the amount of payment information that can be attached to the payment order (HTML2).

2.1.4.2 Clearing of Cheques

As of Thursday, July 5, 2007, Jordan became one of the leading word countries that implement a comprehensive system for electronic cleaning of cheques. To execute this major project, all licensed banks and their branches were equipped with the necessary computers, scanners, and communication lines and data base systems. Moreover, the necessary technical cadres were trained to handle the system.

During 2007, the number of cleared cheques dropped from around 10931.9 thousand cheques in 2006 to 10901.9 thousand in 2007. The value of the cheques was, however, higher by 14.0 per cent to 30233.7million from JD 26521.6 million from JD 26521.6 million in 2006.

The number of bounced cheques was higher in 2007 by 45.9 per cent reaching 626.6 thousand cheques compared to 429.4 thousand cheques in 2006. This increase was accompanied by a 76.2 per cent rise in the value of bounced cheques to JD 1404.6 million in 2007 from JD 797.1 million in 2006.

It is worth mentioning in this regard that the number of cheques that bounced because of insufficient funds in 2007 represented 57.0 per cent of the gross value of returned cheques.

Table (1.2)
Circulated and Returned Cheques at the Clearing Rooms

Description	2006	2007	% Percentage Change
Circulated Cheques			
Number (thousand)	10931.9	10901.9	-0.27
Value (JD million)	26521.6	30233.7	14
Returned Cheques			
Number (thousand)	429.4	626.6	45.92
Value (JD million)	797.1	1404.6	76.21
The ratio to the number of Circulated Cheques (%)	3.93	5.75	-
The ratio to the Value of Circulated Cheques (%)	3	4.65	-
Returned Cheques for insufficient balance			
Number (thousand)	240.8	357.3	48.38
Value (JD million)	380.6	733.2	92.64
The ratio to the number of Circulated Cheques (%)	2.2	3.44	-
The ratio to the Value of Circulated Cheques (%)	1.44	2.43	-
Returned Cheques for another reasons			
Number (thousand)	188.6	269.3	42.79
Value (JD million)	416.5	671.4	61.2
The ratio to the number of Circulated Cheques (%)	1.73	2.47	-
The ratio to the Value of Circulated Cheques (%)	1.57	2.22	-

Source: Central Bank of Jordan/ Monthly Statistical Bulletin

2.1.4.3 ATM service “Co-operation vs. Competition”

Even in some industries where information system (IS) has proved truly strategic, it is still beginning to see the emergence of cooperative development replacing competition in IS innovation, at least for those products and services that appear destined to become commodities; for these products and services, the benefits of cooperation may exceed the potential benefits from competition. The emergence of regional and national ATM networks in retail banking throughout the world is a clear example of this phenomenon (Clemons and Knez, 1988).

Although most banks still allow cash to be withdrawn from a bank teller, ATMs have become an increasingly important way to access cash. The number of ATMs in Jordan has risen steadily in the recent years ATMs have been widely recognized as a convenient way to obtain cash. With the majority of ATMs connected to regional or national networks, cardholders can withdraw cash from most institutions in the country.

At the same time, banks have regarded ATMs as a way to lower their costs, as customers substitute ATM transactions for costly live tellers, some financial institutions impose fees for teller use or reduce monthly charges to depositors who use only ATMs (Stavins, 1999).

However, the cost of an ATM transaction to a cardholder's bank is higher when the cardholder uses another bank's ATM instead of his own. For each such transaction, a cardholder's bank pays two different fees: a switch fee to the ATM network organization and an interchange fee to the bank that owns the ATM. To recover those costs, banks have been charging their cardholders a user fee (Mc and Rews, 1997).

2.1.5 EDI definition

EDI can be defined as the electronic, computer-to-computer exchange of business information in a structured format between business trading partners or between various units within an organization (Ferguson, Hill, & Hansen, 1990).

The idea behind EDI is very simple. Most companies are using computers for keeping records and for correspondence. The information is entered to the computer then printed out and either stored or sent to business partners using mail or fax. EDI enables these companies to transfer this information directly from their computer to other computers.

A summary of some of the EDI definitions is given below:

Table (2.2)
EDI Definition

Definition	source
Co-operative inter-organizational Systems (IOS) that allow trading partners to exchange structured business information electronically between separate computer applications.	Swatman and Swatman, 1992.
The inter-organizational exchange of business documentation in a structured, machine-process able form.	Emmelhainz, 1990
EDI is the inter-company computer-to-computer communication of standard business transactions in a standard format that permits the receiver to perform the intended transaction.	Sokol, 1989
A method of computer-to-computer data transmission intended to improve the speed and accuracy of transactions among trading partners.	Laughlin, 1989
A way for a computer in one company to communication directly with a computer in another company to perform business transaction and to access data.	Reich, 1985
The computer-to-computer transmission of business data in a standard format.	Oskorba, 1990
Electronic transmission in certain prescribed formats either requested from or given to another company.	Stenger, 1986

Source: Asher, 2003.

2.1.6 EDI Functions and features

The functions of EDI is not only replacing the paper documents with electronic documents, but also replacing manual data entry with automation data entry. EDI is also able to transmit business documents electronically so it will wipe out the dependence on postal systems (Iskandar, 2000).

EDI has some features in common with e-business; it also exhibits significant differences, as EDI is typically a more expensive, proprietary technology operating over a private network controlled by one large manufacturer or supplier. In comparison, e-business is based on the open standard protocol of the Internet. It is more tightly integrated to the value chain at both the front end (sales, customer services) and the back end (coordination, procurement), while EDI is more focused on the back end (invoice exchange, order documents, and inventory management), which is why it is popular in the manufacturing industry (Chau and Tam 1997).

2.1.7 EDI Barriers and motives

EDI practitioners have put forward a variety of reasons as to why this technology (EDI) has not been implemented. The EDI literature provided a discussion of a range of EDI barriers from the perspective of large and/ or small companies, and from the viewpoint of small and medium sized enterprises (Al-bakri, 2007).

Jun and Chai (2003) classified various EDI barriers that found from past literatures into six categories namely managerial leadership issues (e.g. lack of managerial leadership), perceived costs and benefits issues (e.g. substantial financial resources and requirement for the high volume of transactions before obtaining the benefits), technical issues (e.g. incompatibilities of EDI with existing system, proliferation of EDI standards and risk of system instability), human resources management issues (e.g. insufficient education and training for the company's EDI personnel), trading partner relationship issues (e.g. difficulty in getting EDI capable trading partners who use EDI) and security issues (e.g. disclosure of messages, repudiation of message origin, modification of message contents).

Emmelhainz (1993) discussed four common barriers that a company might face in EDI implementation process. Non-computerized trading partners who do not have necessary computer skills to implement EDI, concern over earlier payment as a result of faster movement and processing of invoices and payment as well as an EDI document has no signature which cause concern over the legality of EDI transactions are the common barriers in EDI implementation.

Study by Chau (1997) found that knowledge and skills about EDI, internal IT support, attitude towards EDI adoption and influence by the industry could be the major potential barriers in adopting EDI technology. Chau concluded potential barriers more depend on organizational context (first three potential barriers) than external pressure context (the last element).

Parsa and Popa (2003) identified the EDI implementation is unsuccessful due to barriers such as low number of transactions to ensure

EDI, less cooperation of trading partners, high cost of EDI implementation and EDI standard problems.

In general, costs of EDI also could be a major consideration for majority of companies and these costs can be classified into three major categories, namely software and hardware cost, communication cost, (involved in the actual transmission of an electronic message such as one-time cost and monthly service charges for third party networks) and training cost for both internal personnel and trading partners (Lummus and Duclos, 1995; Swatman and Swatman, 1992).

More specifically, the barriers to EDI implementation by SMEs during this period, which were identified most consistently, were:

1. The lack of awareness of the benefits of EDI (Iacovou et al, 1995).
2. The lack of willing EDI trading partners (Al-bakri, 2007).
3. The difficulty associated with integrating the EDI with the firm's internal systems (Iacovou et al, 1995).
4. The high initial set up costs associated with EDI (Iacovou et al, 1995).
5. The lack of technical and financial resources required implementing EDI (Al-bakri, 2007).
6. The standards of EDI are used differently by trading partners (Al-bakri, 2007).
7. The lack of EDI know- how in the company (Iacovou et al, 1995).
8. The lack of management commitment to and/ or support for EDI (Iacovou et al, 1995).
9. The incompatibilities between hardware and software when firms try to integrate EDI with their internal systems (Al-bakri, 2007).
10. The lack of customers and EDI education and/or acceptance of EDI (Al-bakri, 2007).

On the other hand, studies have shown that EDI could affect companies (SME's) marketing performance, as it provides great benefits and opportunities.

2.1.8 EDI Implementation Benefits

One of the barriers to EDI implementation is the difficulty in quantifying the costs and benefits involved in acquiring and using this tool (Emmelhainz, 1993).

With regard to benefits of EDI Implementation, (Emmelhainz, 1993) stated that traditional Data interchange could result in several problems:

1. Increase in processing time; in traditional data (papers) interchange, the physical transmission of documents between trading partners caused an increase in processing time to complete a single transaction.

2. Low accuracy; due to the traditional information interchange system that requires multiple instances of the same information, data has to be reentered at various places within the processing life cycle. Repeat entering of the same information increases the possibilities of errors.
3. High labor cost; traditional flow of data and information requires data to be entered manually at each step in the processing cycle.
4. Increased uncertainty; in traditional paper-based processing systems, the time of receiving documents will be unsure. This kind of uncertainty often resulted in constant telephoning to confirm the reception of documents.

There are many different studies on the benefits to be obtained by an organization when implementing EDI, some of them merely theoretical, and others with an empirical base. (Jun and Chai, 2003) follow Dearing's classification (1990): direct, indirect and strategic. Table (3.2) shows a list of the benefits considered.

Table (3.2)
EDI Implementation Benefits

DIRECT
Paper savings
Avoiding filing costs and maintenance
Avoiding repetitive administrative procedures
Less paperwork enables reduction in administrative personnel
INDIRECT
Avoiding errors
Faster payments/improved cash flow
Avoiding production stoppages resulting from lack of raw material
Reducing the purchasing/sales cycle (ordering, delivery and invoice)
Reducing stock levels
Reducing inventory breaks
STRATEGIC
Increasing business relationships with companies using EDI
Improving customer loyalty
Improving the quality and quantity of information
Faster response and access to information
Gaining new business contacts using EDI
Reducing the number of business contacts by concentrating on those that use EDI

Source: Jun, M. and Chai, S. (2003).

2.1.8.1 EDI benefits for banks

EDI was introduced to the trucking industry in the early 1970s and has since spread to other industry and business sectors such as banking

sector. Sensing the opportunity to reduce paperwork, automate key transaction-handling activities, and reduce processing costs, the early adopters were quickly attracted to the technology (Leng Ang et al, 2003).

In the study carried out by (Bidgoli, 1999), it has been mentioned that EDI can enhance the bank competitiveness by expediting the delivery of information and reducing costs. In this study, the researcher outlines some additional benefits of EDI technology, such as:

1. Promotion of true relationships between the banks.
2. Improvement of quality through improving record-keeping, fewer errors in data entry, reducing processing delays, less reliance on human interpretation of data, and minimizing unproductive time.
3. Improvement of bank's competitiveness.
4. Provision with timely and accurate data for decision-making.
5. Improvement of the internal operations of a bank by reducing the process-cycle time (Parsa and Popa, 2003).

2.1.8.2 EDI benefits for Customers

Electronic Data Interchange could provide customers with the following benefits:

1. Reduce transportation costs to banks.
2. Save waiting time in banks.
3. Rapid and safe money collection, payment, and transfer.
4. Prompt control of account status.
5. Prompt and flexible capital distribution in accounts.
6. Increase efficiency of cashier and financial staffs (HTML3).

2.1.9 EDI Components

As a new way of doing business, EDI consists of three major components.

1. The first component is EDI standard that is related to the business message format to insure that it can be communicated.
2. The second component is EDI software to translate internal format into external format, vice versa.
3. The third component is EDI network that discusses on how messages are delivered or received to or from trading partners (Iskandar, 2000).

2.1.10 EDI implementation and Marketing Performance

The impact of Electronic Data Interchange (EDI) on marketing performance is slightly studied and understood. A common perception is that EDI improves the quality of service, which, in turn, improves marketing performance.

In general, studies from the developed world have yielded evidence of a strong positive correlation between Information Technology (IT) and organizational performance. However, these studies focused on specific operational aspects or sub-areas of Information Technology (IT) such as EDI implementation.

Previous studies have investigated several dimensions of the impact of EDI implementation on organizational performance using different approaches. Some studies distinguished between various dimensions of organizational performance such as: Financial, operational, strategic, business, and marketing performance.

Following (Venkatraman and Ramanujam, 1986) and (Wu et al, 2006), the definition of marketing performance includes sales growth, market share, product development, and market development.

Toufaily and Daghfous (2006) distinguished between certain dimensions of the marketing performance includes service quality improvement, Cost reduction, market share expansion, contentiously electronic services and products development, and reinforcement the relationship with customers.

2.2 Literature Review

The first step in developing this study instrument was an extensive and in-depth literature review.

2.2.1 Previous studies of EDI Implementation factors

In considering a quantitative methodology, the literature review process enables the researcher to identify gaps in understanding. It also highlights the conceptual and theoretical frameworks that will feed back into the research findings.

Electronic Data Interchange (EDI) has received a great deal of research attention. However, majority of these studies were confined to the USA, Canada and Europe (Seyal et al, 2006). Comparatively less has been researched in Jordan and the numbers of these studies were conducted reflecting the use of IT in general. The following are some related studies that have been found:

Iacovou, Benbasat, and Dexter (1995) identified three major factors responsible for EDI adoption. They are organizational readiness operationalized as financial and technological resources of the firm; external pressures divided into competitive pressure and imposition by trading partners; and perceived benefits of the technology. By investigating seven case studies of small businesses, Iacovou et al concluded that a large number of small organizations tend to lack the needed high organizational readiness and perceived benefits that are required for integrated high

impact systems and that a major reason for small companies to adopt EDI is the external pressure by trading partners.

Elbaz's study (1998) is based on Iacovou et al (1995) research where seven cases of EDI adoption were studied. He modified Iacovou et al. s' model by introducing the awareness variable. He also changed the organizational readiness variable to financial strength and technology used. So, Elbaz's model consists of five factors namely perceived benefit, external pressure, financial strength, technology used and awareness. The third and fifth variables are the subset of organizational readiness category in Iacovou et al.'s model. The fifth factor had been introduced in this study to measure the roles of users' awareness on EDI adoption. His study was conducted using questionnaires that were sent to 1000 businesses in different industries in Quebec. A size of 149 companies was used to test the revised model. According to Elbaz, the lack of EDI knowledge could be an obstacle for EDI adoption and thus, awareness and understanding of new technology is a prerequisite to the adoption process. This study found EDI adoption had significant positive relationships with awareness, financial strength, external pressure and technology used. Thus, Elbaz suggested the inclusion of awareness factor in Iacovou et al.'s EDI adoption model.

Kuan and Chau (2001) conducted a study in Hong Kong to understand factors distinguishing EDI adopters from non adopters. They proposed a perception–based small business EDI adoption model. They tested this model with a survey of 575 small firms. The main results can be summarized as follows: perceived direct benefits were distinguishing adopter from non adopter firms, while perceived indirect benefits were not a distinguishing factor. Perceived financial cost and perceived technical competence was more obstacles for non adopter firm than adopter ones. Finally adopters perceived a higher government pressure and a lower industry pressure than non adopters.

Another study by (Ngrai and Gunasekaran, 2004) used an empirical research to study the application of EDI in Hong Kong. Through a survey of Hong Kong companies, questions were asked about perceived barriers to implementation of EDI, perceived benefits achievable through EDI, and critical success factors for the adoption of EDI. The main objective of this study was to develop a framework for enhancing the application and implementation of IT with a view to improved organizational competitiveness.

Chwelos, Benbasat, and Dexter (2000) posited three factors as determinants of the adoption of electronic data interchange (EDI): readiness, perceived benefits, and external pressure. To construct the model, they identified and organized the factors that were found to be influential in earlier EDI researches. By testing all these factors together in one model, they are able to investigate their relative contributions to EDI

adoption decisions. Senior purchasing managers, chosen for their experience with EDI and proximity to the EDI adoption decision, were surveyed and their responses analyzed using structural equation modeling. All three determinants were found to be significant predictors of intent to adopt EDI, with external pressure and readiness being considerably more important than perceived benefits. They stated that the constructs in this model can be categorized into three levels: technological, organizational, and inter-organizational. They assumed that these categories of influence will continue to be determinants of the adoption of other emerging forms of inter-organizational systems (IOS).

Kim and Lee's study (2007) identified the determinant factors which affect implementation of EDI systems by Korean companies. Decentralization, EDI standards, technical compatibility, technical support by EDI vendors, education and training, and participation of trading partners positively affect the extent of EDI usage. Formalization, technical compatibility, user involvement and participation of trading partners affect EDI integration with internal applications. Top management support and the participation of trading partners promote the extent of EDI operations. This study provides evidence of the effect of important determinant factors such as participation of trading partners and technical compatibility replicating previous EDI studies conducted in the US and Europe. For policy makers and EDI developers, this study provided insights as to appropriate measures and incentives system designed to encourage EDI and B2B implementation.

Seyal, and Rahim's study (2006) is the first study conducted in Brunei investigates the 84 small and medium enterprises by using a survey approach to find out the key factors that are determinants to EDI adoption. Based upon the existing model, the study uses seven factors grouped into three categories, namely organizational (IT Knowledge, top management support), external (government support, trading partner influence) and economic factors (perceived direct benefits, perceived indirect benefits, perceived cost). The findings indicate that hypotheses related to perceived direct benefits and perceived cost are supported. However, the study not finds support for perceived indirect benefits. All other factors such as: IT Knowledge, government support, top management support and trading partner influence remain insignificant.

Seyal, Abd, Rahman, and Mohammad's study (2006) investigated fifty small and medium enterprises by using a survey approach to find out the key factors that are determinants to EDI adoption. Based upon the existing model, the study used six factors grouped into three categories, namely organizational, environmental and technological aspects. The findings indicated that factors such as perceived benefits government support and management support were significant determinants of EDI

adoption. The remaining factors like organizational culture, motivation to use EDI and task variety remain insignificant. Apart from the governance implications few studies have tried to evaluate the direct benefits of technology usage.

Arunachalam's study (2004) examined alternative organizational forms for EDI processing within organizations and evaluated them on several task performance indices including independence, saturation, and satisfaction, and also related them to EDI effectiveness as a function of information technology (IT) intensity and length of EDI use. Results from an extensive, two-phase survey of EDI users indicated that organizational form for EDI processing influenced task performance indices such that the more decentralized structures (i.e. star and circle structures) exhibited higher independence and lower saturation than the more centralized structures (i.e. wheel, kite, and chain structures). More decentralized forms also exhibited higher satisfaction with EDI than the more centralized forms on no routine EDI tasks. EDI task performance indices were also correlated with EDI effectiveness, such that higher independence, lower saturation, and higher satisfaction were associated with higher EDI effectiveness. IT intensity and length of EDI use also positively moderated the effects of decentralization on EDI effectiveness.

Ramamurthy, Premkumar, and Crum's study (1999) examined the influence of organizational and inter-organizational variables on the extent of diffusion attained by the adopters of inter-organization systems within the specific context of EDI and examined whether more extensive diffusion is really useful in furthering organizational outcomes. The research model investigated in this study includes a set of seven (three inter-organizational and four organizational) antecedent variables that are expected to influence EDI diffusion. Diffusion is a two-dimensional measure represented by external and internal integration. The model also posits a relation between the extent diffusion and two organizational-level outcomes. The five major areas of research that provide the necessary theoretical foundations for this study and the rationale for selecting the above variables are political economy within marketing, organizational theory, innovation, use of information technology for competitive advantage (ITCA), and IS implementation. A discussion of key research in these areas in general and those specific to EDI is provided fewer than three broad categories: inter-organizational factors, organizational factors, and diffusion organizational outcome domains. Two senior executives (the chief executive officer and a senior manager responsible for the IS function or EDI) from 83 firms in the motor carrier industry participated in a field survey. The results from a structural equation model (SEM), developed using LISREL, provide quite a strong support for the hypothesized relations. All four organizational variables and two of the three inter-organizational variables (customer

support and competitive pressure) influence EDI diffusion. The results also indicate that external integration dimension of diffusion enables adopter firms to achieve improved operational and market-oriented performance, whereas internal integration contributes only to operational performance.

A summary of some of the literature related to affecting EDI factors implementation is given below:

Table (4.2)
A summary of literature of EDI Implementation factors

Author(s)/ year	Title of Study	Country/ Sample Size	study object	factors affecting EDI implementation
Kim and Lee. (2007)	Factors affecting the implementation of electronic data interchange in Korea.	Korea/ 520 companies	EDI implementat-ion	Organizational Structural Characteristics ; Technical Characteristics, Managerial Characteristics ; and Environmental Characteristics.
Seyal, and Rahim. (2006)	A Preliminary Investigation of Electronic Data Interchange Adoption in Bruneian Small Business Organizations	Brunei /84 SMEs	EDI adoption	Organizational (IT Knowledge, Top Management Support), External (Government Support, Trading partner influence) and Economic factors (perceived direct benefits, perceived indirect benefits, perceived cost).
Seyal et al.(2006)	A quantitative analysis of factors contributing electronic data interchange adoption among Bruneian SMEs: a pilot study	Brunei /100 SMEs	EDI adoption	Perceived Benefits, Government Support , Management Support, Organizational Culture, Motivation to use EDI, and Task Variety
Ngrai and Gunasekaran. (2004)	Implementation of EDI in Hong Kong: an	Hong Kong/ 1000 companies	EDI implementat-ion	Top Management Support, Technological

	empirical analysis			Infrastructure, Education and Training, Strategic Planning
Arunachalam . (2004)	Electronic Data Interchange: an evaluation of alternative organizational forms	Columbia/ 1043	EDI	Organizational form
Kuan and Chau. (2001)	A perception-based model of EDI adoption in small businesses using technology organization environment framework	Hong Kong /575 SMEs	EDI adoption	Organizational Characteristics, Environmental Characteristics, and Technological Characteristics
Chwelos et al.(2000)	Empirical test of an EDI adoption model	268 SMEs	EDI adoption	readiness, external pressure, perceived benefits,
Elbaz. (1998)	electronic data interchange: an assessment of the factors leading to EDI adoption	Australia ,Belgium, Canada and US/149 companies	EDI adoption	External Pressure, Perceived Benefits, Awareness. Financial Strength, Technology used.
Iacovou et al.(1995)	Electronic Data Interchange and small organizations: adoption and impact of technology	Columbia /7 SMEs	EDI adoption	External Pressure, Perceived Benefits, Organizational Readiness
Ramamurthy et al. (1999)	Organizational and Inter-Organizational Determinants of EDI Diffusion and Organizational Performance: A Causal Model	United States/ 83 firms in the motor carrier industry	EDI use	Organizational factor (Management Support, Expected Benefits, Resource Intensity, Compatibility, Costs) and Inter-Organizational factor (Competitive Pressure, Customer Support).

2.2.2 Previous studies of the impact of EDI on Performance

After several years of use of electronic data interchange (EDI) in various industries, the literature is still inconclusive regarding the benefits gained from its usage.

Most of the research on how inter-organizational information systems affect performance has focused on the use of EDI.

To measure impacts of EDI investments for the EDI adopters, (Lee et al, 1999) examine the use of EDI in conjunction with a continuous replenishment program at the Campbell Soup Company and a number of its retail customers. They have investigated the performance of 31 grocery retail chains (EDI adopters) that implemented EDI networks with Campbell (EDI champion) for a supply channel reengineering innovation known as "continuous replenishment process." Analysis of daily data on inventory and stock outs levels for the 31 retail chains demonstrates that these EDI adopters have achieved a significant increase in their inventory turns while simultaneously reducing stock outs as a result of this EDI-enabled supply channel reengineering. They find that EDI provides benefits in terms of lower inventory levels and reduced stock outs, not only to the EDI champion, but also to other firms in the supply chain. They attribute improved performance, in part, to greater vertical information integration. This paper thus provides empirical evidence that EDI adopters can achieve dramatic performance improvements if EDI networks are used for inter firm process reengineering.

Ahmad and Schroeder (2001) studied the impact of EDI on delivery performance and find that the extent of EDI use significantly improves delivery performance. They choose a manufacturing plant as the unit of analysis and use the delivery performance of that plant to evaluate the effectiveness of EDI. This study builds on the theoretical perspectives presented in previous research related to the effectiveness of EDI in organizations. However, it differs from the previous studies in that it explicitly recognizes the contextual factors at the plant level. A part of the data collected under the World Class Manufacturing (WCM) project is used to test the hypotheses proposed in this study. The data set contains data from Germany, Italy, Japan, and the USA. Stratified random sampling was used to select plants from three industries (electronics, machinery, and automobiles) and the four countries mentioned above. The purpose of this type of stratification was to avoid a situation where plants from any of the country-industry combinations would not be represented in the dataset. These plants were then contacted for their voluntary participation. About 60% of the plants contacted agreed to participate in the WCM study. A plant coordinator, appointed by the plant manager, served as liaison with the WCM research team. The questionnaires were translated into respective languages, then back-translated into English and compared to the original

version of the questionnaire for content validity. After a few iterations, the surveys were administered in the countries mentioned above. Part of this dataset contains information on the use of EDI and includes 85 plants from the electronic, machinery, and automobile industries. Ahmad and Schroeder investigated contextual factors of two types: non-managerial (product diversity, product customization, production instability, and organizational size) and managerial (just-in-time and quality management), that might have confounded past results. The results indicate that the extent of EDI use is significantly related to delivery performance after controlling for the above-mentioned factors. Furthermore, the data set supported the moderating effect of production instability on the relationship between the extent of EDI use and delivery performance achieved, but failed to support the moderating effect of organisationnel size.

Dröge and Germain (2000) survey members of a logistics professional organization and find EDI use to be positively associated with both inventory and financial performance, net of any impact due to the use of JIT. They study the association of EDI with two dimensions of performance; the first performance dimension is the amount of inventory held by the firm. They include inventory spanning the entire workflow from inbound through to finished goods. Inventory held by the firm is important since it has implications for managing field warehousing assets, factory storage space requirements, internal logistical flows, and carrying costs. The second dimension of performance studied is financial performance, which includes profits, return on sales (ROS), and return on investment (ROI). The framework incorporates four important control variables. Three of these represent the operating context of the firm: demand volatility, firm size, and production technology routineness. The last control variable is just-in-time (JIT). The latter is a critical control variable since prior research reports that JIT also associates with fewer inventories and with better overall financial performance. Findings in the expected direction concerning JIT will lend credence to the findings of the relationships of EDI with financials and inventory. The control variables are modeled in both linear and nonlinear fashions. Linear means that the relationships of EDI on inventory and financial performance are studied as main effects while controlling linearly for context and JIT. Nonlinear means that the relationships of EDI with inventory and overall financial performance are examined when each of the control variables is high versus low. A field survey was selected as the approach to examine the relationship of EDI with inventory and financial performance. A survey questionnaire was designed, pretested by 10 executives, and then mailed to 1,002 CLM members. The original sampling frame consisted 3,069 members, but this was culled to 1,002 by discarding non-U.S. members, by retaining only one member from any given organization, and by

eliminating members who should have appeared on the CLM service and merchandising list. Service and merchandising firms were excluded as the survey was designed specifically for manufacturers. A number of the scales in the survey are not applicable to merchandisers including those concerned with production technology and raw and in-process inventory levels.

Finally, Ramamurthy et al. (1999) posited the impact of EDI on firm performance as the consequence of technological, organizational, and environmental factors. Based on (TOE) framework they examined the factors: Organizational factor (management support, expected benefits, resource intensity, compatibility, costs) and Inter-organizational factor (competitive pressure, customer support) for studying EDI innovation using a survey on a sample size of 83 firms in the motor carrier industry. Their empirical results indicated that the impact of EDI on operational and market-oriented performance was significantly affected by these factors.

A summary of some of the literature related to the impact of EDI implementation on marketing performance is given below:

Table (5.2)
A summary of literature of the impact of EDI implementation on Performance

Author(s) / year	Title of Study	Country/ Sample Size	study object	Type of Performance
Lee et al. (1999)	Can EDI Benefit Adopters?	Hong Kong/31 grocery retail chains	EDI use	Performance
Ahmad and Schroeder. (2001)	The Impact of Electronic Data Interchange on Delivery Performance	Germany, Italy, Japan, and the USA/85 plants from the electronic, machinery, and automobile industries	EDI use	Delivery Performance
Dröge and Germain. (2000)	The Relationship of Electronic	USA /1,002	EDI use	Financial Performance

	Data Interchange with Inventory and Financial Performance			
Ramamurthy et al. (1999)	Organizational and Inter-Organizational Determinants of EDI Diffusion and Organizational Performance: A Causal Model	United States/ 83 firms in the motor carrier industry	EDI use	Operational and Market-Oriented Performance

In the light of the above literature and previous studies, the next section provides an outline of the proposed research model and variables.

2.3 Study Model and Hypotheses development

This study is based on (Iacovou et al, 1995)'s study where seven cases of EDI adoption were investigated. (Iacovou et al, 1995) identified three major variables affecting the adoption of EDI: perceived benefits, external pressure and organizational readiness.

The current study introduces the top management support and organizational characteristics in addition to the three variables in Iacovou et al.'s model. In this study, organizational readiness variable will substitute for technical infrastructure.

The proposed model for this study is developed based on the framework which derived from previous studies.

According to many studies reviewed by the researcher there are many important external factors that have an impact on EDI implementation. A summary of these factors is given below:

Table (6.2)
Summary of EDI implementation factors in the current study

Factor in the current study	Source
Perceived Benefits	Chwelos et al, 2000; Elbaz, 1998; Iacovou et al, 1995; Kuan and Chau, 2001; Seyal et al, 2006; and Ramamurthy et al, 1999.
Top Management Support	Kim and Lee, 2007; Ngrai and Gunasekaran, 2004; Seyal and Rahim, 2006; Seyal et al, 2006; and Ramamurthy et al, 1999.
Technical Infrastructure	Elbaz, 1998; Kim and Lee, 2007; Kuan and Chau, 2001; and Ngrai and Gunasekaran, 2004.
External Pressure	Chwelos et al, 2000; Elbaz, 1998; Iacovou et al, 1995, Seyal and Rahim, 2006; and Ramamurthy et al, 1999.
Organizational Characteristics	Kim and Lee, 2008; and Kuan and Chau, 2001.

In addition to that EDI implementation have impact on marketing performance (Toufaily and Daghfous, 2006; Rajhi and Ben Romdhane, 2002; and Val et al, 2006).

2.3.1 Hypotheses development

To examine the points previously discussed and address the issues raised, it has formulated the following hypotheses with explication based on the Figure (1.2):

Perceived Benefits refer to the anticipated advantages that EDI can provide the organization. Benefits are both direct and indirect in nature. Direct benefits include operational cost savings and other internal efficiencies arising from. For example, reduced paperwork, reduced data re-entry, and reduced error rates. Likewise, indirect benefits are those opportunities that emerge from the use of EDI, such as improved customer service and the potential for process reengineering (Chwelos et al, 2000).

An organization will only choose to adopt an innovation if it perceives that doing so will provide significantly greater benefits than existing technologies and processes (Rogers, 1983).

Perceived Benefits to Bank are the extent to which banks perceive that there are benefits to be derived from participating in an electronic network (Al-Bakri, 2007).

The bank must perceive that the EDI Implementation will either resolve existing operational problems or provide the bank with new opportunities for improving the marketing performance.

This lead to the following hypotheses**:**

H1a: Perceived Benefits have a positive direct effect on EDI Implementation.

H1b: Perceived Benefits have a positive indirect effect on Marketing Performance through "EDI Implementation".

One of the most frequently mentioned factors in the literature for successful adoption and implementation of integration solutions is top management support (Ngai and Gunasekaran 2004, it refers to positive attitude towards microcomputers, Top Management endorsements of efforts of the staff to provide training information, and consulting on data access, system development, and operations (DeLone &McLean, 1992).

Top Management Support has been recognized as one of the most important elements necessary for successful implementation of EDI (Angeles et al, 2000; Emmelhainz, 1988; Scala and McGrath, 1993). Since Top Management's primary responsibility is to provide sufficient financial support and adequate resources for building a successful EDI system, the support of management ensure that the EDI project has a high priority within an organization and that it receives the required resources and attention. Lack of financial support and adequate resources will inevitably lead to failure. Apart from this primary support, psychological or behavioral support is also important in making the development run smoothly, especially if there is a significant resistance from the staff involved (Ngrai and Gunasekanan, 2004).

Top Management Support is a significant factor in influencing the effectiveness of the IS function in an organization (Nathan et al, 2004). However, many organizations that have invested significantly in information systems have not fully realized an improvement in productivity or performance (Grover et al, 1998) as well as Marketing Performance. The lack of productivity has been attributed to implementation and resource problems (Lederer and Sethi, 1992) as well as organization, hardware, and cost problems (Teo and King, 1996). It has also been attributed to the lack of Top Management Support (Brynjolfsson, 1993).in other hand, (Bharadwaj, 2000) has found empirical relationships between superior and performance.

In the banking industry, most customers are motivated by accuracy of records and timely provision of services. Particularly, most of them measure the service standard of banks on how timely transactions are

completed. A lengthy queue may lead to loss of good will or/and profit, either of which is an unhealthy situation for banks. A lot of managerial efforts are directed towards ameliorating this situation (Agboola et al, 2008).

Based on this, the following hypotheses are developed:

H2a: Top Management Support has a positive direct effect on EDI Implementation.

H2b: Top Management Support has a positive indirect effect on Marketing Performance through "EDI Implementation".

Implementing EDI requires a higher level adoption of computer applications and infrastructures to leverage intra-and interbank transactions via systems integration. So, when a bank adopts EDI, it is estimated that the integration of new electronic channels within the bank requires the presence of telecommunication, multimedia and network infrastructure, electronic platforms, an interconnection, advanced programming languages (Toufaily and Daghfous, 2006).

So, this indicates that banks with high Technical infrastructure (i.e., physical IT infrastructure components, human IT resources, and IT-enabled capabilities) tend to high control of variety of profit and cost-based performance measures.

Building on this, the researcher proposes that technical infrastructure has an indirect effect on marketing performance through EDI Implementation.

This lead to the following hypotheses:

H3a: Technical Infrastructure has a positive direct effect on EDI Implementation.

H3b: Technical Infrastructure has a positive indirect effect on Marketing Performance through "EDI Implementation".

External Pressure encapsulates the influences arising from several sources within the competitive environment surrounding the organization: competitive pressure, relating to the ability of EDI to maintain or increase competitiveness within the industry; industry pressure, relating to the efforts of industry associations or lobby groups to promulgate EDI standards and encourage adoption; and two measures of trading partner influence. Dependency on trading partner captures the potential power of a trading partner to "encourage" EDI implementation (Provan, 1980).

External Pressure on EDI implementation between banks is assessed by incorporating four items: competition, dependency on other banks already using EDI, the industry, and the government (Anandarajan et al, 2002; Grandon et al, 2004).

This lead to the following hypotheses**:**

H4a: External Pressure has a positive direct effect on EDI Implementation.

H4b: External Pressure has a positive indirect effect on Marketing Performance through "EDI Implementation".

The organizational characteristics are a critical factor in the reaction to innovation (Skhiri, 2000). Such as, organization size, financial resources.

The size and financial resources factors are one possible explanation for the greater rate of EDI implementation among very large firms, as organization size has consistently been recognized as a driver of organizational innovation (Damanpour, 1992). (Langley and Truax, 1994) also emphasize that the possession of funds is a key factor when companies introduce technology. This study demonstrates that the implementation of EDI, with its high costs, requires serious financial justification, not only to cover the costs of introducing the new technology, but also for learning about the new management model, technology support, application of new procedures, and training existing staff members. Thus, organizations which have greater financial resources and which have easier access to capital are more likely to introduce new electronic communication systems.

The size of an organization probably does not have a direct bearing on its marketing performance. However, in the context of adoption and implementation of EDI in an organization, size can play an important role (Ahmad and Schroeder, 2001). Therefore, the size of an organization can have an indirect impact on the effectiveness of EDI in that organization and hence, needs to be controlled in a study that investigates the relationship between EDI and marketing performance.

Businesses are usually prepared to undertake changes provided that they see a competitive advantage. However, many companies have problems in implementing new technologies, including EDI, due to lack of sufficient capital. Therefore, companies are reluctant to implement any EDI technologies unless they are convinced of the benefits of implementing EDI in their organizations (Ngai and Gunasekaran, 2004). One of these benefits is the improvement of marketing performance.

Based on this, the following hypotheses are developed:

H5a: Organizational Characteristics have a positive direct effect on EDI Implementation.

H5b: Organizational Characteristics have a positive indirect effect on Marketing Performance through "EDI Implementation".

Different EDI-related literature articulates a positive relationship between the level of EDI implementation and the ability to achieve significant benefits from its implementation for all participating firms in the network. The identification of the levels of EDI implementation is significant due to the relationship between progress in the implementation of EDI system and the benefits obtained by organizations (Lummus et al, 1995). The electronic exchange of information between bank branches can have a significant impact on the performance. In this study, the focus is on

the marketing performance improvement as one of EDI implementation benefits. This lead to the following hypothesis:
H6: There is a positive significant statistical impact of EDI implementation on marketing performance.

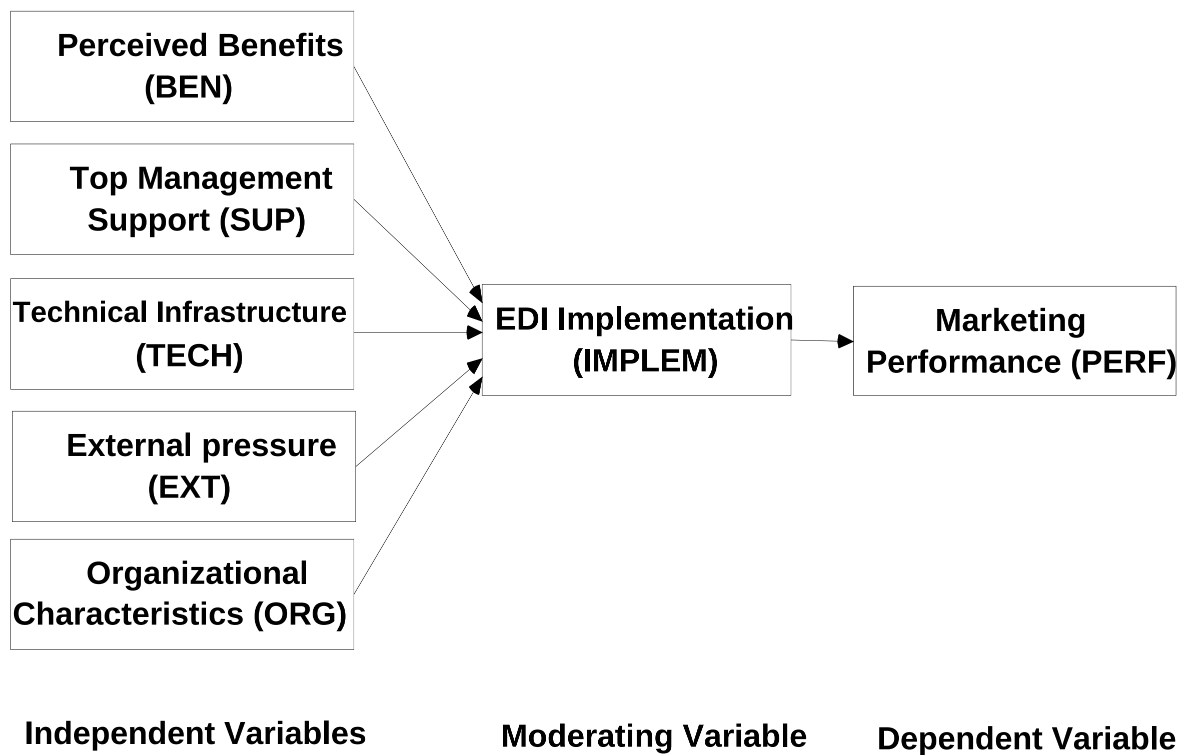
Table (7.2)
Summary of Study Hypotheses

Number of Hypothesis	Hypothesis
H1a	Perceived Benefits have a positive direct effect on EDI Implementation.
H1b	Perceived Benefits have a positive indirect effect on Marketing Performance through “EDI Implementation”.
H2a	Top Management Support has a positive direct effect on EDI Implementation.
H2b	Top Management Support has a positive indirect effect on Marketing Performance through “EDI Implementation”.
H3a	Technical Infrastructure has a positive direct effect on EDI Implementation.
H3b	Technical Infrastructure has a positive indirect effect on Marketing Performance through “EDI Implementation”.
H4a	External Pressure has a positive direct effect on EDI Implementation.
H4b	External Pressure has a positive indirect effect on Marketing Performance through “EDI Implementation”.
H5a	Organizational Characteristics have a positive direct effect on EDI Implementation.
H5b	Organizational Characteristics have a positive indirect effect on Marketing Performance through “EDI Implementation”.
H6	There is a positive significant statistical impact of EDI implementation on marketing performance.

2.3.2 Study Model

Based on the theoretical framework and previous studies, the researcher has constructed the proposed model shown in figure (1.2) below. The model illustrates the independents variables (Perceived benefits, Top management support, Technical Infrastructure, External pressure, and Organizational characteristics), the dependent variable (Marketing performance), and the moderate variable (EDI implementation):

Figure (1.2): Study Model



Chapter Three
Design and Methodology

In previous chapters, the guideline of the research and its supporting literature has been discussed. In this chapter, methodological issues are discussed including the type of investigation, research population and sampling. Moreover, data collection and analysis tools are highlighted.

In this chapter, the procedure of statistical design and data analysis will be given to prepare a foreground for the next chapter which is the results of statistical analysis and its implementation for this research.

This chapter will first outline the questionnaire and the different types of variables, and then discusses sampling and its characteristics. In the next step the prepared data is evaluated; and lastly, the final discussion will be concerned with the Exploratory and Confirmatory phases.

3.1The Research Design

After clarifying the research problem and research objectives, the researcher can now focus on selecting the most appropriate research design. A research design is a master plan of the research methods and procedures that should be used to guide data collection and analysis tasks of the research project (Zikmund, 2000). The key criterion when making decisions about research methodology is how useful it will be for the study. Exploratory, descriptive and hypothesis testing based on different research paradigms can be used depending on the stage to which knowledge about the work has advanced (Cavana et al., 2001). Decisions concerning research could start with qualitative assumptions and proceed to quantitative methods of exploring new areas of interest. They could then continue with a description of the phenomenon and finish off by testing the hypotheses to either confirm or deny the relationships among variables.

A well-defined research objective gives a clear direction in which to design this research. The research design for this study is described in terms of methods, population, instruments and procedures used for data collection as well as procedures used during the data analysis. The research design chosen enabled the researcher to achieve the objectives of the study.

This study uses a sample survey methodology to test the above hypotheses and proposed model. A theoretically grounded questionnaire was developed to call for responses from Jordanian commercial banks about EDI implementation and marketing performance.

3.2 Study Method

The validation of the conceptual framework is based on quantitative method of data collection, using a survey administered to Jordanian commercial banks branches managers. The choice of the Jordanian context

is firstly explained by the importance of the banking sector in this developing country and secondly, by the rapid evolution of the implementation of new technologies by these banks.

3.3 Population and sample selection

3.3.1 Population

One of the important research design decisions pertains to sampling. Sampling design relates to both the methods used to select the sample from the population, and the size of the sample necessary to generalize the findings from the sample data to the total population.

The population includes all the Jordanian commercial banks' branches in Jordan (451 branches). The researcher chose commercial banks because they are heavily involved with data interchange activities because of their business nature.

3.3.1 Sample Selection

Sampling is the process of selecting a sufficient number of the items from the population so that by studying the sample, and understanding the properties or the characteristics of the sample subjects, we will be able to generalize the properties or characteristics to the population elements (Dowdy et al, 2004).

Using the 29th annual report of Association of Banks in Jordan (2007), the researcher has chosen the six largest banks in Jordan (Arab Bank, Housing Bank Housing, Bank for Trade&Finance, Jordanian Ahli Bank, Cairo Amman Bank, Bank of Jordan and Jordan Kuwaiti Bank) working in Amman, Irbid, and Karak (276 branches), which represents 61 % of the population. Because of this high rate, it is estimated that there was no representativeness problem. The researcher targeted top managers, assistant, managers, co-assistants and experts of commercial banks branches in Jordan chosen for their experience. Co-assistants are those people who have high responsibility after managers in a certain department in a bank. In this study, experts are those people who have experience and works sometime as managers' arm in implementing their decision but they have lower position than managers have and higher than other typical experts (Table 1.3).

Table (1.3)
Selected Sample

Bank's Name	Amman	Irbid	Karak	total
Arab Bank	49	5	1	55
Jordanian Ahli bank	32	3	1	36
Cairo Amman Bank	29	7	2	38
Bank of Jordan	28	6	1	35
The Housing Bank for Trade&Finance	50	15	9	74
Jordan Kuwaiti Bank	29	3	0	32
Total	**217**	**39**	**14**	**270**

Source: 29th annual report 2007, Association of Banks in Jordan

The researcher first distributes a survey questionnaire to each of the 276 sampled branches by hand, together with a cover letter that explained the purpose of this study. The researcher followed up, personally, the questionnaires with sample's members.

A total of 230 questionnaires were collected. Three questionnaires removed due to incomplete information. Thus, the researcher had 227 usable responses resulting in an 84.07% response rate, which was comparable to other studies of a similar nature. Table (4.1) in chapter four shows the characteristics of the respondents.

3.4 Data Collection method and Instrument

In the first phase of data collection, the researcher uses secondary data for building up the research model and questionnaire. In the second phase of the data collection, primary data is applied to the research investigation, since the researcher is carried out a self-completion questionnaire survey with closed questions.

3.4.1 Secondary data

The underlying drive towards choosing the topic of thesis related to "Electronic Data Interchange" has been motivated by Professor Göran Bergendahl. Thereafter, the researcher started looking for the relevant literatures and articles available in the library and different databases. The researcher used keywords like "E-Commerce", "Management Information System", "Information Technology", and "Electronic Data Interchange" for searching information. Too many articles and books were found, and tried to sort out those which are directly related to the topic at issue. After reading carefully through these articles, it is founded some of them quite interesting and worthwhile in order to get help for developing the idea of these study.

In addition, secondary sources of data including Journals, official publications, thesis, books….etc, will be used to facilitate conducting of this study (Sekaran, 2004).

3.4.2 Primary Data

In the first phase of data collection, the researcher has used secondary data for building up the research model and questionnaire .The researcher uses a sample survey approach to test research hypotheses and the proposed model.

A questionnaire consists of a set of questions presented to respondents. Because of its flexibility, the questionnaire is by far the most common instrument used to collect primary data (Kotler et al, 2006).

3.4.2.1Questionnaire Structure and Format

The survey is consisted 32 questions. The questionnaire was pre-tested, modified, and used to capture data in a cross-sectional survey of EDI implementation in Jordanian commercial banks. The questionnaire was originally prepared in English, and it was later translated into Arabic (the native language of respondents).The translated version of the questionnaire was shown to some specialists for arbitration to assure the face validity and the accuracy of translation.

The survey was evaluated and judged by 12 experts from the Faculty of Business Administration in Jordanian Universities. Some modifications were made accordingly.

The design of the questionnaire was based on the research issues discussed below. There were four parts to the questionnaire:

1. Profiles of the bank and respondent,
2. Respondent opinion about EDI implementation in his bank, it had items measured on a five-point scale ranging as follow:
    1) The choice (very low, 0 -20%) anchored by point 1.
    2) The choice (low, >20 -40%) anchored by point 2.
    3) The choice (medium, >40 -60%) anchored by point 3.
    4) The choice (high, >60 -80%) anchored by point 4.
    5) The choice (very high, <80-100%) anchored by point 5(Lai et al, 2007).
3. Critical factors affecting the EDI implementation, it had items measured on a five-point Likert scale ranging as follow:
    1) The choice (Strongly Disagree) anchored by point 1.
    2) The choice (Disagree) anchored by point 2.
    3) The choice (Neutral) anchored by point 3.
    4) The choice (Agree) anchored by point 4.
    5) The choice (Strongly Agree) anchored by point 5.

4. Perceived marketing performance achievable through EDI implementation in questions measured on a five-point Likert scale ranging as follow:
    1) The choice (Strongly Disagree) anchored by point 1.
    2) The choice (Disagree) anchored by point 2.
    3) The choice (Neutral) anchored by point 3.
    4) The choice (Agree) anchored by point 4.
    5) The choice (Strongly Agree) anchored by point 5.
    6)

3.5 Variables measurement: Operational Definitions and Scales

Measurement of the variables in the theoretical framework is an integral part of research and an important aspect of research design. Unless the variables are measured in some way, the researcher will not be able to test our hypotheses and find answers to complex research issues (Sekaran, 2004).

3.5.1 Operational Definitions

Operational Definition is definition of a construct in measurable terms by reducing it from its level of abstraction through the delineation of its level of abstraction through the delineation of its dimensions and elements (Sekaran, 2004).

Table (2.3)
Operational Definitions

Variables	Operational definition	Sources	Items
EDI Implementation	The current stage of electronic data interchange measured by deferent dimensions such as volume, diversity, and breadth.	Massetti and Zmud. 1996; Lai et al.2007.	1-6
Perceived Benefits	Improving the job performance and productivity, and enhancing job effectiveness.	Chwelos et al.2001; Iacovou et al.1995; Elbaz, D.1998; and Al-Bakri, A. 2007.	7-10
Top Management Support	Top management' positive attitude towards EDI implementation.	Kim and Lee, 2007; Ngrai, E., and Gunasekaran, A.2004; and Anandarajan et al.	11-15

		2002.	
Technical Infrastructure	Existing of technology infrastructure, and technical resources to implement EDI.	Kim and Lee. 2008; Ngrai and Gunasekaran. 2004; and Kuan and Chau. 2001.	16-17
External pressure	The impact of competition, customers, industry, and central bank pressure on EDI implementation.	Kim and Lee, 2007; Elbaz.1998 Iacovou et al.1995.	18-21
Organizational characteristics	The importance of the bank size and bank financial resources on EDI implementation.	Damanpour, F. 1992; Langley and Truax. 1994.	22-23
Marketing Performance	The ability of EDI implementation to ensure the accuracy and professional marketing performance of the job.	Daghfous and Toufaily, 2007; Rajhi, M., and Ben Romdhane, S. 2002.	24-31

3.5.2 EDI implementation scale

It has been shown that it is of vital importance that organizations know its current position with respect to its EDI implementation stage. However, being able to monitor developments can provide crucial information for a continual emergent strategic approach. (Massetti and Zmud, 1996) have developed an approach to EDI measurement that has the dimensions of volume, diversity, breadth and depth.

1) Volume: the extent to which a firm's co-document exchange are handled through EDI connections (characterized by file to file connections).
2) Diversity: the extent to which different types of a firms business documents are handled through EDI connections (characterized by application to application connections).
3) Breadth: the extent to which a firm has developed EDI connections with each of its trading partners (characterized by coupled work environments).
4) Depth: the extent to which a firm's business processes are intertwined with those of its trading partners through EDI connections (characterized by penetration of coupled work environments).

Increasing depth needs financial and managerial commitment and not all companies are willing to cooperate. Some researchers argue that the financial risks resulting from greater depth in relationships between banks. For this reason the researcher depends on three dimensions of volume, diversity, breadth to EDI measurement.

3.6 Procedures of the Study

After preparing the final version of the instrument and verifying its reliability and validity, the researcher continued the research through the following procedures:

1. The researcher prepared a list of the six bank addresses, phone number, and manager name from the banks sites in the internet.
2. The researcher grouped the banks in the same area and prepare another list include the areas when the highest numbers of banks.
3. The researcher obtained permission from the banks managers firstly by phone district to distribute the questionnaire.
4. The researcher himself distributed the questionnaire on bank managers, from the 7th of May to the 15th of Join 2009.
5. The researcher collected the questionnaires after more than five weeks. 227 copies were returned out of 230.

3.7 Analyses Tools

Data collected is analyzed using SPSS version 16.0 for purposes of descriptive statistics and exploratory factor analysis, while Partial Least Square (PLS), using AMOS 16.0, is utilized to determine the interactions between the various constructs of structured equation model (SEM). Inter-item consistency reliability is conducted for the consistency of the respondents' answers to the items in a measure in this research questionnaire.

In order to investigate the direct effects of perceived benefits, top management support, technical infrastructure, external pressure and organizational characteristics on EDI implementation, and the indirect effects on marketing performance through EDI implementation, the collected data were analyzed using the structural equation modeling method.

Structural equation modeling has been used by previous researchers for decomposing effects into direct and indirect (causal) effects and for eliminating non-causal effects (Reger et al, 1992). By identifying indirect effects, path analysis makes available results, which are not calculated using ordinary regression analysis. This provides a more holistic view of the relationships, rather than examining each pairing in isolation.

Structural equation modeling is a large-sample method. A sample size below 200 may be insufficient for SEM. As a general rule, those

samples are considered large that contain more than 200 sample units (Fan and wang, 1998). Hair et al. (1995) considered a number of 200 to be ideal. In determining the simple for this survey this criteria was met. The sample size of this thesis is 227, which is considered appropriate for the sample size of this thesis is 227, which is considered appropriate for using SEM.

AMOS (Analysis of Moment Structure) is a program designed for estimating structural equation models. There are two ways to set up AMOS models. AMOS can read files in a number of formats, including SPSS, Excel, and D-Base, but NOT Stata. The AMOS version 16.0, a method to analyze the Linear Structural Relationship Model, was used to examine the suggested model.

3.8 Instrument Validation and Reliability

3.8.1 Validity

Validity is a characteristic of measurement concerned that a test measures what the researcher actually whishes to measures; that differences found with a measurement tool reflect true differences among respondents drawn from a population (Cooper and Schendler, 2001). One type of validity is content validity which is the degree to which a research instrument provides adequate coverage of the topic under study (Cooper and Schendler, 2001). Face validity and content validity refers to the subjective agreement among professionals that a scale logically appears to reflect accurately what it purports to measure (Zikmund, 2000).

In order to ascertain the model’s predictive validity, the strength of the independent variable upon the dependent variables, and the strength or significance of the paths between the variables, or constructs, was assessed. The strength of the impact was assessed by means of the explained variance in the dependent variable and should be above 0.1 (Chan, 1992), and the paths should be significant (Goo et al., 2004).

3.8.2 Reliability

Reliability is a term that refers to the consistency of results produced by a scale if repeated measurements are made (Malhotra, 1990). In the case of this study, reliability of the survey scale was measured using the Cronbach's alpha (α) in the SPSS software.

Cronbach alpha measures the consistency based on the extent to which a participant who answers a question in a way will respond to other questions in the same manner (Malhotra, 1990).

Moreover, the higher the value of (α) is, the greater the reliability (Sekaran, 2004).

Table (3.3) shows the results of reliability testing of measurement scales used for measuring exogenous and endogenous variables of the

defined structural model. The alpha values for all dimensions vary from 0.763 to 0.906, which are considered acceptable (Hair et al. 1998).

Table (3.3)
Model Reliability
Cronbach's Alpha for the Measurement Scales

Variable	No. of Items	Alpha
EDI Implementation (IMPLEM)	6	0.886
Perceived Benefits (BEN)	4	0.863
Top Management support (SUP)	5	0.906
Technical Infrastructure (TECH)	2	0.812
External Pressure (EXT)	4	0.763
Organizational Characteristics (ORG)	2	0.855
Marketing Performance (PERF)	8	0.896

Also, the questionnaire was pre-tested among 5 bank's managers with similar profiles in order to examine whether the statements needed to be randomized or arranged in clusters (Tai and Tam, 1996). The procedure was also intended to check whether the questions were well understood by the respondents in the survey. It found that the sequence of questions had no noticeable effects on the respondents' answers. However, randomization of the order of the statements was used for encouraging the respondents to read more carefully before answering the questions. Similarly, other sections of the questionnaire in this study were developed through a series of pre-tests and subsequent revisions on wording and layouts. The items used to measure each variable are listed in the Appendix.

The AMOS program (Analysis of Moment Structure) version 16.0, a method to analyze the Linear Structural Relationship Model, was used to examine the suggested model.

The fundamental point in analyzing structural models is the extent to which the hypothesized model "fits" or adequately describes the sample data (Byrne, 2001). A model fit can be evaluated by examining several model-fit indices.

Six common model-fit measures were used to assess the model's overall goodness-of-fit Table (4.3). Comparison of all fit indices with their corresponding recommended values, as shown in Table (4.3), provided evidence of a good model fit. The values of analyzed indices indicate that the level of fit of defined model to data is satisfactory and that the defined model is acceptable for further analysis.

Table (4.3)
Recommended fit indices

Fit Indices	Recommended value*	Indices Value
χ^2/df	$\leq$ 3.00	2.30
Goodness of fit (GFI)	$\geq$ 0.90	.981
Adjusted goodness of fit (AGFI)	$\geq$ 0.80	.865
Normed fit index (NFI)	$\geq$ 09.0	.996
Comparative fit index (CFI)	$\geq$ 0.90	.997
Root mean square residual (RMSR)	$\leq$ 0.10	.061

Source: Luarn and Lin (2005).

Chapter Four
Data Analysis and Hypotheses Testing

This chapter discusses the responses' frequencies in terms of the respondent's demographic characteristics and results from hypothesis testing, the general contributions of personal of the personal study; each hypothesis is tested and analyzed individually.

4.1 Sample Characteristics

Table (1.4) shows the characteristics of sample according to demographic variables.

Table (1.4)
Frequencies and Percentages of respondents according to their demographic variables

Measure		Frequency	Percent
Gender	male	163	71.8
	female	64	28.2
	Total	227	100.0
Age	Less than 30	9	4.02
	30-39	82	36.21
	40-49	117	51.72
	50-59	19	8.05
	Total	227	100.0
Educational level	High school	4	1.7
	B.A	171	75.3
	Master	52	23.0
	P.H.D	0	0.00
	Total	227	100.0
Bank	Arab	43	19.0
	Ahli	31	13.8
	Cairo	33	14.4
	Jordan	30	13.2
	Housing	46	20.1
	Kuwait	44	19.5
	Total	227	100.0
Area	Amman	141	62.1
	Irbid	61	27.0
	karak	25	10.9
	total	227	100.0

The largest number of respondents comes from Amman banks branches (62.1%).

The largest category (75.3%) of educational level is Bachelor degree.

The age of the participants ranged from less than 30 and above, with a largest percentage (51.72%) in 40-49 category, furthermore, about (71.8%) of respondents are male, whereas (28.2%) of respondents are female.

4.2 Hypotheses Testing and Results

Because of the assumption that factor analysis and structural equation modeling both require variables to be normality distributed, it was necessary to check the distribution of variables to be used in the analysis (Hair et al., 1995; Tabachnick and Fidell, 2001, Kline, 2005).

To test the normality of distributions of individual variables, kurtosis index and skewness index were computed for each variable. The resulting indices are shown in Table (2.4).

Table (2.4)
Assessment of normality

Variable	skew	kurtosis
Perceived Benefits (BEN)	.308	-.152
Top Management Support (SUP)	1.047	1.663
Technical Infrastructure (TECH)	.713	.103
External Pressure (EXT)	.647	.416
Organizational Characteristics (ORG)	.759	.275
EDI Implementation (IMPLEM)	-.052	-.872
Marketing Performance (PERF)	.634	.371

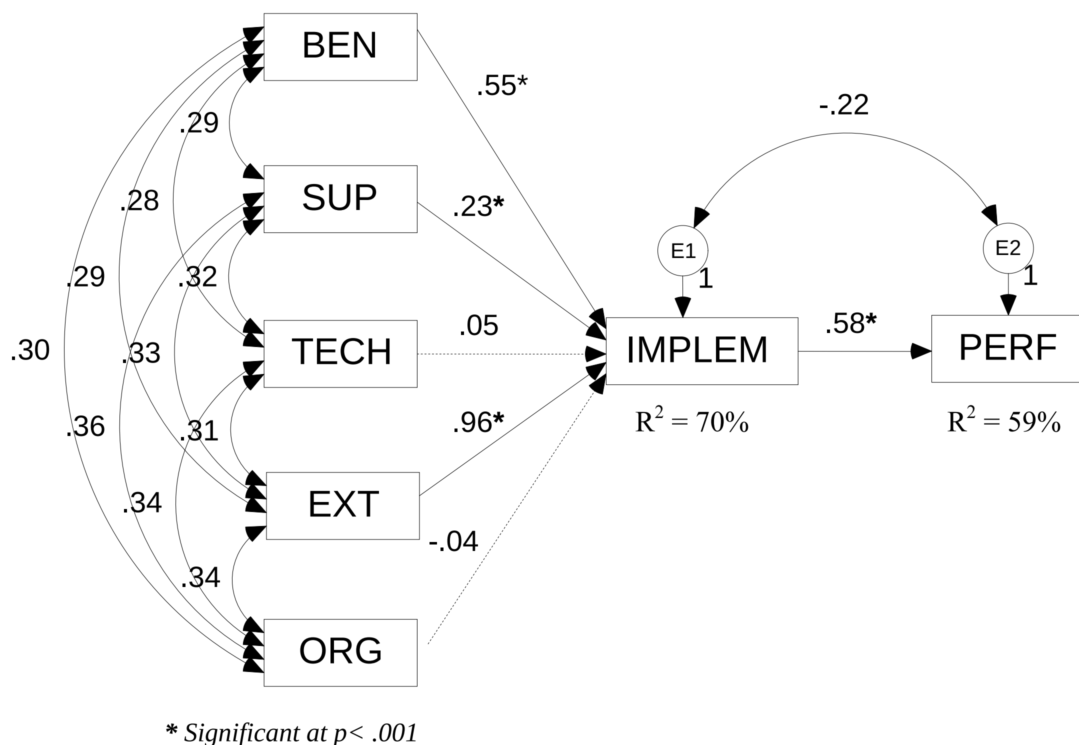
From the results, it can infer that both indices are within acceptability limits (absolute values lower than 10 for kurtosis index, and absolute values lower than 3 for skewness index), and that collected data demonstrate an acceptable level of normality (Kline, 2005).

After the measurement model has been assessed, the researcher examined the estimated coefficients of the causal relationships between constructs, which would validate the hypothesized effects.

The test of the structural model included estimating the path coefficients, which are interpreted as standardized beta weights in a regression analysis, and R^2, which is used to assess the proportion of variance in the endogenous constructs (dependent variables) which can be accounted for by the antecedents. The path coefficient of an exogenous variable (dependent variable) represents the direct effect of that variable on the endogenous variable.

Using AMOS, the researcher tested the hypotheses and determines the path coefficients based on the model. Figure (1.4) illustrates the coefficients of determination (R^2) for each dependent construct, the estimated coefficients and their significance on the structural model. All of the path estimates are statistically significant, except for those running from Technical Infrastructure (TECH) to EDI implementation (IMPLEM), and from Organizational Characteristics (ORG) to EDI implementation (IMPLEM).

Figure (1.4)
Structural Model



** Significant at p< .001*

4.3 Interpretation of the findings

As indicated in Table (3.4) and figure (1.4), BEN-Perceived Benefits (β = 0.545; t = 10.405; α = 0.000), SUP-Top management Support (β = 0.229; t = 3.805; α = 0.000) and EXT-External Pressure (β = 0.958; t = 13.728; α = 0.000) have a positive direct effect on EDI implementation (IMPLEM). While TECH-Technical Infrastructure (β = 0.049; t =0 .815; α = 0.415) and ORG-Organizational Characteristics (β = -0.043; t = -0.660; α = 0.509) have no direct effect on EDI implementation (IMPLEM). Also, IMPLEM-EDI implementation has a positive direct effect on PERF-Marketing Performance (β =0.576; t = 23.356; α = 0.000). Therefore, the researcher accepts hypotheses H1a, H2a, H4a, and H6, but doesn't accept hypothesis H3a and H5a.

Table (3.4)
Structural model results (direct effect)

Path	Coefficients (β)	S.E.	T-values	P-Value	result
H1: BEN -> IMPLEM	0.545	0.052	10.405*	0.000	Supported
H2: SUP -> IMPLEM	0.229	0.060	3.805*	0.000	Supported
H3: TECH -> IMPLEM	0.049	0.060	0.815	0.415	Rejected
H4: EXT -> IMPLEM	0.958	0.070	13.728*	0.000	Supported
H5: ORG -> IMPLEM	-0.043	0.064	-0.660	0.509	Rejected
H6: IMPLEM -> PERF	0.576	0.025	23.356*	0.000	Supported

*** Significant at p< .001, based on t (227), two-tailed test; t (.001, 227) = 3.29.**

Also about 70% of the variance of Marketing Performance is explained by EDI implementation (R^2 = 70), and about 30% of the variance of Marketing Performance explained by other factors (Table 4.4).

Table (4.4)
R^2 values

Construct	R^2
EDI Implementation (IMPLEM)	70%
Marketing Performance (PERF)	59%

4.4 Indirect effects

An indirect effect represents the effect of a particular variable on the second variable through its effects on a third mediating variable. It is the product of the path coefficients along an indirect route from cause to effect via tracing arrows in the headed direction only. When more than one indirect path exists, the total indirect effect is their sum (Table 4.6). The sum of the direct and indirect effect reflects the total effect of the variable on the endogenous variable (Alwin and Hauser 1975; Ross 1975).

As indicated in Table (5.4), BEN-Perceived Benefits ($\beta = 0.314$; $t = 12.077$; $\alpha = 0.001$), SUP-Top management Support ($\beta = 0.132$; $t = 4.125$; $\alpha = 0.001$) and EXT-External Pressure ($\beta = 0.552$; $t = 17.806$; $\alpha = 0.001$) have a positive indirect effect on Marketing Performance (PERF). While TECH-Technical Infrastructure ($\beta = 0.028$; $t = 0.933$; $\alpha = 0.396$) and ORG-Organizational Characteristics ($\beta = -0.025$; $t = -0.694$; $\alpha = 0.517$) have no indirect effect on Marketing Performance (PERF). Therefore, the researcher accepts hypotheses H1b, H2b, H4b, but doesn't accept hypothesis H3b and H5b.

Table (5.4)
Structural model results (indirect effect)

Path	**Coefficients (β)**	**S.E.**	**T-values**	**P-Value**	result
H1: BEN -> PERF	0.314	0.026	12.077*	0.001	Supported
H2: SUP -> PERF	0.132	0.032	4.125*	0.001	Supported
H3: TECH -> PERF	0.028	0.030	0.933	0.396	Rejected
H4: EXT -> PERF	0.552	0.031	17.806*	0.001	Supported
H5: ORG -> PERF	-0.025	0.036	-0.694	0.517	Rejected

*** Significant at p< .001, based on t (227), two-tailed test; t (.001, 227) = 3.29.**

Table (6.4)
Direct, Indirect and Total Effects

Variable	IMPLEM	PERF
BEN		
Direct effect	0.545	------
Indirect effect	------	0.314
Total effect	0.545	0.314
SUP		
Direct effect	0.229	------
Indirect effect	------	0.132
Total effect	0.229	0.132
TECH		
Direct effect	0.049	------
Indirect effect	------	0.028
Total effect	0.049	0.028
EXT		
Direct effect	0.958	------
Indirect effect	------	0.552
Total effect	0.958	0.552
ORG		
Direct effect	-0.043	------
Indirect effect	------	-0.025
Total effect	-0.043	-0.025
IMPLEM		
Direct effect	------	0.576
Indirect effect	------	------
Total effect	------	0.576

Briefly, the tests of the structural model showed that the Perceived Benefits, Top Management Support and External Pressure have a positive direct effect on EDI Implementation and a positive indirect effect on Marketing Performance, whereas Technical Infrastructure and Organizational Characteristics do not have a direct or indirect effect on marketing performance.

Table (7.4)
Summary of the Results of hypotheses testing

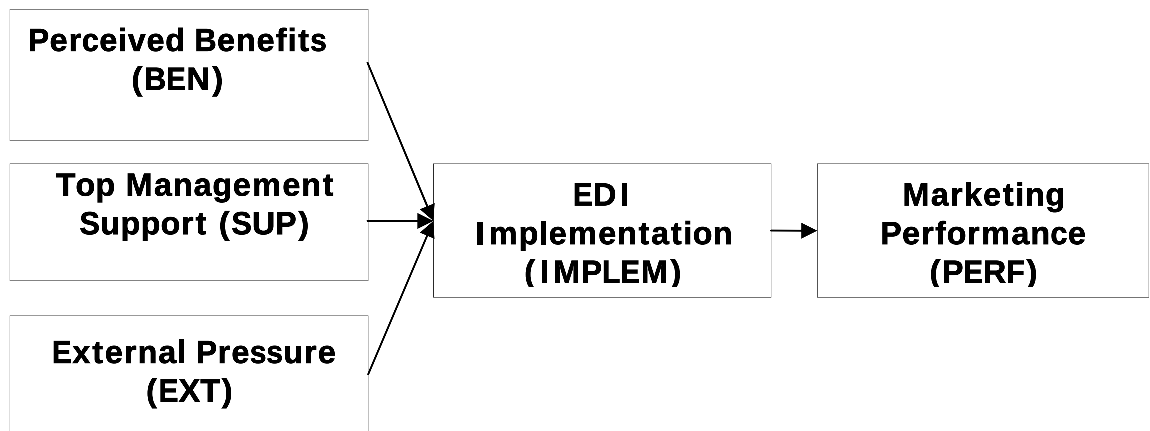
Hypothesis	Accepted / Rejected
H1a: Perceived Benefits have a positive direct effect on EDI Implementation.	Accepted
H1b: Perceived Benefits have a positive indirect effect on Marketing Performance through "EDI Implementation".	Accepted
H2a: Top Management Support has a positive direct effect on EDI Implementation.	Accepted
H2b: Top Management Support has a positive indirect effect on Marketing Performance through "EDI Implementation".	Accepted
H3a: Technical Infrastructure has a positive direct effect on EDI Implementation.	Rejected
H3b: Technical Infrastructure has a positive indirect effect on Marketing Performance through "EDI Implementation".	Rejected
H4a: External Pressure has a positive direct effect on EDI Implementation.	Accepted
H4b: External Pressure has a positive indirect effect on Marketing Performance through "EDI Implementation".	Accepted
H5a: Organizational Characteristics have a positive direct effect on EDI Implementation.	Rejected
H5b: Organizational Characteristics have a positive indirect effect on Marketing Performance through "EDI Implementation".	Rejected
H6: There is a positive significant statistical impact of EDI implementation on marketing performance.	Accepted

4.5 Study model after testing

After testing the model, the researcher found that some factors had effect on EDI implementation, these factors were Perceived Benefits, Top management Support, and External Pressure, and others had no effect on EDI implementation, these factors were Technical Infrastructure and Organizational Characteristics.

According to these results, the model will be as follow:

Figure (2.4)
Study model after testing



Independent variables | Moderating variable | Dependent variables

Chapter Five
Findings and Recommendations

This chapter is about presenting finding and conclusions based upon the empirical quantitative data analysis derived in the previous chapter. Conclusions are presented in a general discussion, dealing with research questions. At the end of this chapter the researcher draw some suggestions, and give some recommendations and future research directions.

5.1 Discussion of the findings

Information technology (IT) changes have caused the implementation of EDI technology that provides companies with opportunities to enhance existing marketing performance.

In this study, some findings, especially which related to Perceived Benefits, Top management Support, and External Pressure are similar to those found in studies conducted in different developed countries or different geographical regions.

This is one of the first studies to examine these factors in Jordanian commercial banks. This study analysis showed that Technical Infrastructure and Organizational Characteristics are not major factors preventing Jordanian commercial banks from implementing EDI system.

In light of the study objectives and the test of the research hypothesis in chapter four the researcher has reached the following:

5.1.1Perceived Benefits

It was found that perceived benefits have a positive direct effect on EDI Implementation. This finding is similar with what (Chwelos et al, 2000); (Kuan and Chau, 2001); (Iacovou et al, 1995) and (Seyal et al, 2006) have found, which have indicated that the perceived benefits are one of the key reasons why banks and other organizations implement EDI system because perceived benefits were the most influential determinants of the technology usage.

This study has concluded that compatibility of the management of banks and other organizations considered the perceived benefits as an important prerequisite to decide on EDI implementation. If the benefits are not viable they might not decide on this technology. The organizations may pay more attention to the viable benefits. Perceived benefits can act as motivators to encourage the EDI implementation because direct benefits are more viable and are easier to measure (Seyal et al. 2006). So, this study supports the prior studies that perceived benefits were the most influential determinants of the technology usage and especially EDI implementation.

As it show in chapter two Perceived benefits are defined by set of anticipated advantages that innovation can provide the organization. These

benefits can be direct or indirect as mentioned by (Chwelos et al, 2000). Direct benefits include operational cost saving and improved organizational functioning. On the other hand, indirect benefits are opportunities that are the outcome of the use of innovation such as improved marketing performance. This lead to the same finding which this study has found. It was found that perceived benefits have a positive indirect effect on marketing performance through EDI Implementation.

5.1.2Top management support

It was found that Top management support has a positive direct effect on EDI Implementation. This finding is similar with what (Kim and Lee, 2008); (Ngrai and Gunasekaran, 2004) and (Seyal et al, 2006) have found. This is because the support from top management can be effective and influential in introducing new technology.

Many studies (e.g. Premkumar and Roberts 1999, Grover et al, 1998) have found that top management support to be critical for creating a supportive climate for the adoption and implementation of new technologies. In a study of large innovative organizations, (Quinn, 1986) reports that innovation would emerge continuously, because top management would appreciate innovation and contribute actively to keep up the value system and atmosphere of the organization in a manner that supports innovation adoption and implementation. (Jeyaraj et al, 2006) found that top management support to be one of the best predictors of organizational adoption of IS innovations.

Top management support goes beyond general approval for technology acquisition and includes a strong commitment to support the technology at all levels of the organization (Lederer and Mendelow, 1988). Research indicates that securing top management support is a good predictor of the level of success of a new information technology (Ives and Olson, 1984).

The role of top management support in the success of a Management Information System (MIS) project is not only intuitive but also axiomatic. The same is true for EDI project implementation, where the implementation efforts must be protected by top echelon mandate and nurturing. A common complaint in many firms' EDI department is the lack of top management support for EDI programs (Angeles et al, 2001).

According to (Angeles and Nath, 2001), top management support can play a crucial role in the following area:

1. Persuading and supporting business process reengineering;
2. Commitment to the goals of EDI network; and
3. Adopting innovative technologies (Parsa and Popa, 2003).

Inter-Organizational Information System (IOIS) research has emphasized that a key success factor for EDI is management support

(Crook, and Kumar, 1998) and consistently found a significant relationship between top management support and the decision to implement EDI.

In many ways, non-technical issues of an EDI initiative such as organizational issues can be more daunting and expensive than the technical issues of EDI implementation. The "human" costs associated with education, training, and implementation management constitute a significant part of EDI implementation costs. Consequently, in order to successfully implement EDI system, it is necessary to develop a strategy that will manage the nontechnical, organizational issues involved in the process (McLure and Moynihan, 1995).

Top management can stimulate change by communicating and reinforcing values through an articulated vision for the organization (Thong 1999). In banks, the decision-maker is very likely to be in the top management team and his support is vital for the implementation to take place.

In this study the Jordanian commercial banks realize an improvement in marketing performance when the top management supports EDI Implementation. This indicates that Top management support has a positive indirect effect on Marketing Performance.

5.1.3Technical infrastructure

It was found that Technical infrastructure has no effect on EDI Implementation. This finding contradicts with what previous studies (Ngrai and Gunasekaran. 2004) have found that, because higher bank Technical infrastructure is not necessarily associated with the decision to EDI implementation.

One of the most important finding in this study is that; the high cost of EDI implementation and other information and communication technologies in Jordanians banks on the long run due to the costs of the technical infrastructure. This means that in the short run technical infrastructure will have no effect on the bank’s profitability and performance. So, Technical infrastructure has no indirect effect on Marketing Performance through “EDI Implementation” it is true in this case.

5.1.4 External Pressure

It was found that External Pressure has a positive direct effect on EDI Implementation. According to this result and also as in the case of Iacovou et al., External Pressure was the most important factor contributing to intent EDI implementation. Many previous studies agree with this result (Chwelos et al, 2000); (Elbaz, 1998); (Seyal and Rahim, 2006); and (Ramamurthy et al, 1999).

Customer Pressure emerged as one of the significant factor affecting of EDI Implementation, demonstrating that the EDI Implementation was more likely to be higher when respondents perceived the pressure exerted from their customers to be high. Since most organizations are highly dependent on their customers, they may be very willing to Implement EDI in order to maintain business with them (Iacovou et al, 1995).

This study extends previous findings of the significance of pressure from trading partners in EDI. (Chwelos et al, 2000) considered the trading partner as influencing external pressure and readiness while external pressure was considered to be influenced by the dependency on trading partner and enacted trading partner power.

Pressure from competition represents the third factor, which is consistent with previous EDI literature. These studies have shown that innovation diffusion is accelerated by the competitive pressure in the environment. Competitive pressure can affect the implementation of EDI (Banerjee, and Golhar, 1994).

Jordanian central Bank is conducting several projects to provide e-services such as the electronic clearing system; the Bank participates also in the other projects which include the exchange of data by electronic means such as the Information System of Trade and Investment, and the Financial and governmental Information Management System.

5.1.5 Organizational Characteristics

Organizational Characteristics was found to have no direct effect on EDI implementation. This result is in contrast with various other studies on EDI Implementation. This might be due to the fact that the Organizational Characteristics of Jordanian commercial banks might have other characteristics that were not included in this study and contributed to the EDI implementation decision indirectly.

On the other hand, Organizational Characteristics was found to have no indirect effect on Marketing Performance through “EDI Implementation”. The lack of support of Hypothesis H5b may simply indicate that the size of an organization is inconsequential with respect to the success of EDI in achieving superior marketing performance. It is the extent of EDI use that determines the marketing performance achieved regardless of the size of the organization (Ahmad and Schroeder, 2001).

5.1.6 Marketing Performance

Hypothesis 6, concerning the impact of EDI implementation on marketing performance was accepted, this finding appeared to support what a number of studies have found that. The results of these studies indicated the importance of EDI implementation to improving Marketing Performance.

Prior literature has documented the performance benefits from the use of electronic data interchange (Ahmad and Schroeder, 2001; Dröge and Germain , 2000; Lee et al, 1999 and Ramamurthy et al.1999). Generally, there is no argument that EDI implementation can lead to significant marketing performance (Dearing, 1990). Firms can achieve a number of marketing performance benefits through EDI; banks are more willing to transact a greater share of their business with other banks that are EDI linked. Banks may be able to not only increase their sales revenues and cut marketing costs, but the reduced amount of human involvement also enables these banks to handle such enhanced business volume with the same or reduced work force (Salemi, 1995).

5.2 Conclusion

The findings of this study confirm the importance of EDI implementation factors, particularly perceived benefits, organizational support, and external pressure. The findings also reconfirm the direct positive impact of EDI implementation on marketing performance.

So, based on the present research findings, the following conclusions are drawn:

1. Perceived benefits, top management support, and external pressure exert powerful direct positive effects on the decision to EDI implementation.
2. Technical infrastructure and organizational characteristics have no effect on EDI implementation.
3. Perceived benefits, top management support, and external pressure have indirect effect on marketing performance through EDI implementation.
4. Technical infrastructure and organizational characteristics have no indirect effect on marketing performance through EDI implementation.
5. There is a positive direct impact of EDI implementation on marketing performance.

5.3 Limitations

Several limitations were faced during the conducting of this research such as:

1. Unavailability of enough information or statistics concerning information technology in the banking sector in Jordan and some information could not be revealed for security reasons.
2. Lack of studies that searched directly into the impact of EDI on marketing performance.

3. Another limitation was the lack of knowledge of some managers had about the EDI implementation in banks which made the contact with these foundations difficult to some extent.

5.4 Recommendations

Depending on the results of this study, this study can suggests some recommendations to the decision makers in Jordanian Commercial banks, these recommendations may include:

1. A more careful attention should be paid by the top management to EDI investments to enable the positive impact of EDI implementation.
2. A clear strategic plan and information technology plan is needed, as alignment between strategic objectives and IT is a major reason behind EDI investments success.
3. Many bank's experts and managers believed that there must be several infrastructural readiness before implementing EDI; consequently, top managers should try to solve the mentioned impediment so that they can implement EDI easier than before.
4. The search for excellence for all types and sizes of banks is their main objective. The winner is the one who predicts changes in the appropriate manner and responds quickly and effectively to them. This can only be achieved through a mixed of policies, procedures, techniques and IT tools. EDI is a powerful tool that enables banks in achieving their strategic priorities.
5. This study addressed the concern of managers about ways of improving their information management to enhance the performance of banks. The findings revealed that implementation of EDI were useful for improving marketing performance.
6. Banks and other organizations may find it valuable to utilize electronic data interchange, as a coordination mechanism, to facilitate information flows and manage task dependency amongst business processes. Study findings could be useful for those implementing to understand that their efforts may not deliver their expected performance. Managers should not just emphasize developing electronic linkages. In the implementation process, they need to listen to the voice of customers and create customer value.

5.5 Future Researches

There are several reasons that justify using EDI implementation in Jordan, first EDI is an important technological innovation that can change the way business is conducted specially in Jordanian SME, it is used to automate manual processes, which can lead to numerous benefits as already

discussed. Second, EDI is major part of B2B e-commerce, but initiators have had difficulties motivating their partners to implement EDI.

As a final point, the researcher would like to mention that the findings of this study should be of value for practitioners as well as for academics. For practitioners these results can be used as a guideline in reaping the benefits of EDI technology. For academics it provides a starting-point for further research in this area, and especially to the successful EDI implementation.

It is important to note that this was just one study, limited in scope, time and resources. However, the researcher makes the following recommendations for other researchers.

1) The study can be repeated not only with banks managers, but also with the goal of getting to know consumer perceptions, interests and opinions about the impact of electronic data interchange implementation on his satisfaction and loyalty.
2) Another future possibility is to conduct the same study in another industry or country and to compare the results to deduce the common factors as well as the factors that cause differences in EDI implementation from country to the next.
3) Future research could also focus on other factors that may affect EDI implementation.
4) This study should conduct more studies to study the effect or impact of EDI on productivity and profitability.
5) The study can be repeated as comparison study identifies gaps between local and foreign banks in Jordan concerning EDI implementation.

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Appendix (I)

Jordanian Commercial Banks

Jordanian Commercial Banks

#	Member Name	Establish-ed in	Branches		Offices	
			In Jordan	Abroad	In Jordan	Abroad
1	Arab Bank	1930	76	81	1	14
2	Jordanian Ahli bank	1956	46	14	3	0
3	Cairo Amman Bank	1960	51	17	4	0
4	Bank of Jordan	1960	47	7	28	0
5	The Housing Bank for Trade&Finance	1974	96	10	3	4
6	Jordan Kuwaiti Bank	1977	39	3	9	0
7	Arab Jordan Investment bank	1978	9	1	10	1
8	Jordan Commercial Bank	1978	25	3	1	0
9	Jordan Investment &Finance Bank	1989	8	0	1	0
10	Arab Banking Corp./Jordan	1989	14	0	0	0
11	Union Bank	1991	16	1	1	0
12	Société general-Jordan	1993	16	0	0	0
13	Capital Bank	1996	8	0	1	0

Source: 29th annual report 2007, Association of Banks in Jordan

Appendix (II)

Jordanian Islamic Banks

Jordanian Islamic Banks

#	Member Name	Established in	Branches		Offices	
			In Jordan	Abroad	In Jordan	Abroad
1	Jordan Islamic Bank	1978	56	0	9	0
2	International Islamic Arab Bank	1997	16	0	0	0

Source: 29th annual report 2007, Association of Banks in Jordan

Appendix (III)

Non- Jordanian banks

Non- Jordanian banks

#	Member Name	Established in	Branches		Offices	
			In Jordan	Abroad	In Jordan	Abroad
1	HSBC	1949	3	0	2	0
2	Egyptian Arab Land Bank	1951	9	0	3	0
3	Rafidain Bank	1957	1	0	0	0
4	Citi bank	1974	2	0	0	0
5	Standard Chartered	2002	8	0	1	0
6	Bank Audi	2004	7	0	2	0
7	National Bank of Kuwait	2004	1	0	0	0
8	BLOM Bank	2004	5	0	0	0

Source: 29th annual report 2007, Association of Banks in Jordan

Appendix (V)

Questionnaire in English

The researcher hopes that this survey will be useful for bankers and interested readers!



Dear bank manager:

This questionnaire aims to study the different factors that affect the standard of marketing performance of Jordanian commercial banks by focusing on what is called Electronic Data Interchange (EDI) and the factors that affect its implementation among banks, on the one hand and trying to find out the effect of this implementation on marketing performance on the other hand.

I kindly ask you to read the statement carefully, and answer them objectively taking into consideration that there data are going to be used only for academic research. Your contribution will be of great assistance in getting objective and practical conclusions.

Thank you in anticipation for your help.

The Researcher
Madjida Salah Al-Arabi Bensalah
Mu'tah University

PART 1: General information

Please answer the following questions by either choosing a predefined answer:

- Gender:
  - ☐ Female
  - ☐ Male

- Age:
  - ☐ Less than30 years
  - ☐ 30-39
  - ☐ 40-49
  - ☐ 50-59
  - ☐ More than 60

- Educational background
  - ☐ High School
  - ☐ Bachelor Degree
  - ☐ Master Degree
  - ☐ Ph. D

- Bank's name:
  - ☐ Arab Bank
  - ☐ Jordanian Ahli bank
  - ☐ Cairo Amman Bank
  - ☐ Bank of Jordan
  - ☐ The Housing Bank for Trade&Finance
  - ☐ Jordan Kuwaiti Bank

- Bank's location:
  - ☐ Amman
  - ☐ Irbid
  - ☐ Karak

Part two: The following are group of questions related to the EDI implementation. Please put down ✓in the square that reflects your point of view or agreement on each of these factors:

N	Item	Evaluation				
	Volume					
1	the number and volume of data received from other banks through the EDI system:	very low %20-0 ☐	low %40-20 ☐	medium %20-0 ☐	high %80-60 ☐	very high %100-80 ☐
2	the number and volume of data sent to other banks through the EDI system:	very low %20-0 ☐	low %40-20 ☐	medium %20-0 ☐	high %80-60 ☐	very high %100-80 ☐
	Variety					
3	Variety of documents and data received from other banks through the EDI system:	very low %20-0 ☐	low %40-20 ☐	medium %20-0 ☐	high %80-60 ☐	very high %100-80 ☐
4	Variety of documents and data sent to other banks through the EDI system:	very low %20-0 ☐	low %40-20 ☐	medium %20-0 ☐	high %80-60 ☐	very high %100-80 ☐
	Diversity					
5	the number of banks and other institutions (central bank, customers, companies) that we send data electronically to:	very low %20-0 ☐	low %40-20 ☐	medium %20-0 ☐	high %80-60 ☐	very high %100-80 ☐
6	the number of banks and other institutions (central bank, customers, companies) that we receive data electronically from:	very low %20-0 ☐	low %40-20 ☐	medium %20-0 ☐	high %80-60 ☐	very high %100-80 ☐

Part three: The following are group of questions related to the various factors affecting on EDI implementation between banks. Please put down ✓in the square that reflects your point of view or agreement on each of these factors:

N	Item	Evaluation				
	Perceived benefits					
7	EDI implementation provides the opportunities to enhance the functional performance.	Strongly disagree ☐	Disagree ☐	Neutral ☐	agree ☐	Strongly agree ☐
8	EDI implementation enables me from increasing my productivity on the job.	Strongly disagree ☐	Disagree ☐	Neutral ☐	agree ☐	Strongly agree ☐
9	EDI implementation enhances the level of accomplishment of required work.	Strongly disagree ☐	Disagree ☐	Neutral ☐	agree ☐	Strongly agree ☐
10	EDI implementation increases my ability to achieve the objectives.	Strongly disagree ☐	Disagree ☐	Neutral ☐	agree ☐	Strongly agree ☐
	Top management support					
11	Management realizes the benefits achieved through EDI implementation.	Strongly disagree ☐	Disagree ☐	Neutral ☐	agree ☐	Strongly agree ☐
12	Management encourages employees to use modern electronic means to perform their jobs.	Strongly disagree ☐	Disagree ☐	Neutral ☐	agree ☐	Strongly agree ☐
13	Management provides employees with necessary resources that enable them to apply EDI.	Strongly disagree ☐	Disagree ☐	Neutral ☐	agree ☐	Strongly agree ☐
14	Management provides the equipment and electronic devices that are needed for this process.	Strongly disagree ☐	Disagree ☐	Neutral ☐	agree ☐	Strongly agree ☐
15	Management provides employees with all forms of EDI.	Strongly disagree ☐	Disagree ☐	Neutral ☐	agree ☐	Strongly agree ☐
	Technical infrastructure					
16	EDI implementation consistent with existing technological infrastructure of the bank.	Strongly disagree ☐	Disagree ☐	Neutral ☐	agree ☐	Strongly agree ☐

17	The bank possesses the technical means for EDI implementation.	Strongly disagree ☐	Disagree ☐	Neutral ☐	agree ☐	Strongly agree ☐
	External pressures					
18	The competition is an essential factor in our decision to implement EDI.	Strongly disagree ☐	Disagree ☐	Neutral ☐	agree ☐	Strongly agree ☐
19	Customers are an essential factor in our decision to implement EDI.	Strongly disagree ☐	Disagree ☐	Neutral ☐	agree ☐	Strongly agree ☐
20	The banking sector imposes the implementing of EDI.	Strongly disagree ☐	Disagree ☐	Neutral ☐	agree ☐	Strongly agree ☐
21	The mechanism of work with the central bank imposes the implementing of EDI.	Strongly disagree ☐	Disagree ☐	Neutral ☐	agree ☐	Strongly agree ☐
	Organizational characteristics					
22	EDI is applied regardless of the bank size.	Strongly disagree ☐	Disagree ☐	Neutral ☐	agree ☐	Strongly agree ☐
23	The bank possesses sufficient financial resources to implement EDI.	Strongly disagree ☐	Disagree ☐	Neutral ☐	agree ☐	Strongly agree ☐

Part four: The following are group of questions related to the impact of EDI implementation on Marketing Performance. Please put down ✓in the square that reflects your point of view:

N	Item	Evaluation				
24	The ability of bank to satisfy the client's needs which need data interchange with the other branches and banks is improved.	Strongly disagree ☐	Disagree ☐	Neutral ☐	agree ☐	Strongly agree ☐
25	I think that the traditional process which must perform it to data interchange with the other branches and banks are decreased.	Strongly disagree ☐	Disagree ☐	Neutral ☐	agree ☐	Strongly agree ☐
26	I think that the daily treatment with client cost which needs data interchange with the other branches and banks is	Strongly disagree ☐	Disagree ☐	Neutral ☐	agree ☐	Strongly agree ☐

	decreased.					
27	I think that the transaction cost which needs data interchange with the other branches and banks is decreased.	Strongly disagree □	Disagree □	Neutral □	agree □	Strongly agree □
28	I think that the administration cost which needs data interchange with the other branches and banks is decreased.	Strongly disagree □	Disagree □	Neutral □	agree □	Strongly agree □
29	the competitive position of the bank which related to EDI is increased.	Strongly disagree □	Disagree □	Neutral □	agree □	Strongly agree □
30	I think that EDI implementation increases the clients' satisfaction.	Strongly disagree □	Disagree □	Neutral □	agree □	Strongly agree □
31	I think that EDI implementation help the bank for rested his clients.	Strongly disagree □	Disagree □	Neutral □	agree □	Strongly agree □

Thank you!

Appendix (VI)

Questionnaire in Arabic

جامعة مؤتة

<u>استبانه البحث</u>

السيد مدير البنك المحترم

تحية طيبة

تهدّف هذه الاستبانة إلى دراسة العوامل المختلفة التي تؤثر على مستوى الأداء التسويقي للبنوك التجارية الأردنية، بالتركيز على دور ما يسمى بتبادل البيانات الإلكتروني، وذلك من خلال البحث عن العوامل المؤثرة على تطبيقه بين البنوك من جهة،ومحاولة اكتشاف تأثير هذا التطبيق على الأداء التسويقي من جهة أخرى .

لذا أرجو التكرم بقراءة العبارات بدقة، والإجابة عنها بموضوعية، علماً بأن هذه البيانات لن تستخدم إلا لأغراض البحث العلمي. وستكون دقة إجاباتكم ومساهمتكم عوناً كبيراً لي في التوصل إلى نتائج موضوعية وعملية.

الباحثة

ماجدة صالح العربي بن صالح

جامعة مؤتة

وتفضلوا بقبول فائق الاحترام والتقدير..

<u>الجزء الأول:</u> بيانات شخصية و معلومات أولية:

1-الجنس ☐ ذكر☐ أنثى

2-العمر ☐ أقل من 30 ☐30-39 ☐ 40-49 ☐50- 59 ☐أكبر من 60

3-المستوى التعليمي ☐ توجيهي ☐بكالوريوس ☐ ماجستير ☐دكتورا

4- اسم البنـــك:

☐ البنك العربي
☐ البنك الأهلي الأردني
☐ بنك القاهرة عمّان
☐ بنك الأردن
☐ بنك الإسكان للتجارة والتمويل
☐ البنك الأردني الكويتي

5- موقع البنـــك:

☐ عمان
☐ اربد
☐ الكرك

<u>الجزء الثاني:</u> فيما يلي مجموعة من الأسئلة المتعلقة بتطبيق تبادل البيانات الالكتروني، الرجاء وضع إشارة (✓) في المربع الذي يعبر (من وجهة نظركم) عن مدى موافقتكم عن كل عامل من هذه العوامل:

الرقم	العبـــــارات القياسية	التقييم				
	الحجم					
1	**عدد الوثائق وحجم البيانات التي يتم استلامها من البنوك الأخرى من خلال نظام تبادل البيانات الالكتروني:**	منخفض جدا 0-20% ☐	منخفض 20-40% ☐	متوسط 40-60% ☐	مرتفع 60-80% ☐	مرتفع جدا 80-100% ☐
2	**عدد الوثائق وحجم البيانات التي يتم إرسالها إلى البنوك الأخرى من خلال نظام تبادل البيانات الالكتروني:**	منخفض جدا 0-20% ☐	منخفض 20-40% ☐	متوسط 40-60% ☐	مرتفع 60-80% ☐	مرتفع جدا 80-100% ☐
	التنويع					
3	**التنوع في الوثائق و البيانات التي يتم استلامها من البنوك الأخرى من خلال نظام تبادل البيانات الالكتروني:**	منخفض جدا 0-20% ☐	منخفض 20-40% ☐	متوسط 40-60% ☐	مرتفع 60-80% ☐	مرتفع جدا 80-100% ☐
4	**التنوع في الوثائق والبيانات التي يتم إرسالها إلى البنوك الأخرى من خلال نظام تبادل البيانات الالكتروني:**	منخفض جدا 0-20% ☐	منخفض 20-40% ☐	متوسط 40-60% ☐	مرتفع 60-80% ☐	مرتفع جدا 80-100% ☐
	الاتساع					
5	**عدد البنوك والجهات الأخرى(البنك المركزي، العملاء، الشركات...) التي نرسل لها البيانات الكترونيا:**	منخفض جدا 0-20% ☐	منخفض 20-40% ☐	متوسط 40-60% ☐	مرتفع 60-80% ☐	مرتفع جدا 80-100% ☐
6	**عدد البنوك والجهات الأخرى(البنك المركزي، العملاء، الشركات...) التي نستقبل منها البيانات الكترونيا:**	منخفض جدا 0-20% ☐	منخفض 20-40% ☐	متوسط 40-60% ☐	مرتفع 60-80% ☐	مرتفع جدا 80-100% ☐

<u>الجزء الثالث:</u> فيما يلي مجموعة من العوامل التي تؤثر على مستوى تطبيق نظام تبادل البيانات الالكتروني بين البنوك، الرجاء وضع إشارة (✓) في المربع الذي يعبر (من وجهة نظركم) عن مدى موافقتكم عن كل عامل من هذه العوامل:

الرقم	العبـــــارات القياسية	التقييم				
	الفوائد المدركة					
7	**يوفر تطبيق تبادل البيانات الالكتروني الفرص لتحسين الأداء الوظيفي.**	**غير موافق بشدة** ☐	**غير موافق** ☐	**محايد** ☐	**موافق** ☐	**موافق بشدة** ☐
8	**يمكنني تطبيق تبادل البيانات الالكتروني من زيادة معدل إنتاجيتي في العمل.**	**غير موافق بشدة** ☐	**غير موافق** ☐	**محايد** ☐	**موافق** ☐	**موافق بشدة** ☐
9	**يحسن تطبيق تبادل البيانات الالكتروني من مستوى انجاز العمل المطلوب.**	**غير موافق بشدة** ☐	**غير موافق** ☐	**محايد** ☐	**موافق** ☐	**موافق بشدة** ☐
10	**يزيد تطبيق تبادل البيانات الالكتروني من قدرتي على تحقيق الأهداف.**	**غير موافق بشدة** ☐	**غير موافق** ☐	**محايد** ☐	**موافق** ☐	**موافق بشدة** ☐

	دعم الادارة العليا					
11	تدرك إدارة البنك المنافع التي يمكن أن تحقق نتيجة تطبيق تبادل البيانات الالكتروني.	غير موافق بشدة □	غير موافق □	محايد □	موافق □	موافق بشدة □
12	تقدم الإدارة الدعم والتشجّيع للموظفين لاستخدام الوسائل الإلكترونية الحديثة في أداء أعمالهم.	غير موافق بشدة □	غير موافق □	محايد □	موافق □	موافق بشدة □
13	تزوّد إدارة البنك الموظفين بالمساعدة والمصادر الضرورية لتمكينهم من تطبيق تبادل البيانات الكتروني.	غير موافق بشدة □	غير موافق □	محايد □	موافق □	موافق بشدة □
14	توفر الإدارة كافة المعدات و الأجهزة الالكترونية التي يحتاجها البنك في عملية تبادل البيانات الإلكتروني.	غير موافق بشدة □	غير موافق □	محايد □	موافق □	موافق بشدة □
15	توفر الإدارة للموظفين كافة أشكال تبادل البيانات الالكتروني عندما يحتاجونها.	غير موافق بشدة □	غير موافق □	محايد □	موافق □	موافق بشدة □
	البنية التحتية التقنية					
16	تطبيق تبادل البيانات الالكتروني يتوافق مع البنية التحتية التكنولوجية للبنك.	غير موافق بشدة □	غير موافق □	محايد □	موافق □	موافق بشدة □
17	يمتلك البنك الإمكانيات التقنية لتطبيق تبادل البيانات الالكتروني.	غير موافق بشدة □	غير موافق □	محايد □	موافق □	موافق بشدة □
	الضغوطات الخارجية					
18	تمثل المنافسة عامل أساسي في قراراتنا لتطبيق تبادل البيانات الالكتروني.	غير موافق بشدة □	غير موافق □	محايد □	موافق □	موافق بشدة □
19	يمثل العملاء عامل أساسي في قراراتنا لتطبيق تبادل البيانات الالكتروني.	غير موافق بشدة □	غير موافق □	محايد □	موافق □	موافق بشدة □
20	قطاع البنوك يفرض علينا استخدام تبادل البيانات الإلكتروني.	غير موافق بشدة □	غير موافق □	محايد □	موافق □	موافق بشدة □
21	آلية العمل مع البنك المركزي تفرض علينا تطبيق تبادل البيانات الالكتروني.	غير موافق بشدة □	غير موافق □	محايد □	موافق □	موافق بشدة □
	الخصائص التنظيمية					
22	نطبّق تبادل البيانات الالكتروني بغض النظر عن حجم البنك.	غير موافق بشدة □	غير موافق □	محايد □	موافق □	موافق بشدة □
23	يمتلك البنك المصادر المالية الكافية لتطبيق تبادل البيانات الالكتروني.	غير موافق بشدة □	غير موافق □	محايد □	موافق □	موافق بشدة □

<u>الجزء الرابع:</u> فيما يلي مجموعة من الأسئلة المتعلقة بتأثير تطبيق تبادل البيانات الالكتروني بين البنوك على أدائها التسويقي، الرجاء وضع إشارة (✓) في المربع المناسب(من وجهة نظركم):

الرقم	العبـــــارات القياسية	التقييم				
24	قدرة البنك على تلبية حاجات العملاء التي تتطلب تبادل البيانات مع الفروع و البنوك الأخرى قد تحسنت.	غير موافق بشدة □	غير موافق □	محايد □	موافق □	موافق بشدة □
25	اعتقد أن المراحل التقليدية التي يجب انجازها في تبادل البيانات مع الفروع و البنوك الأخرى قد انخفضت	غير موافق بشدة □	غير موافق □	محايد □	موافق □	موافق بشدة □
26	أعتقد أن تكلفة معالجة طلبات العملاء اليومية التي تتطلب تبادل البيانات مع الفروع و البنوك الأخرى قد انخفضت.	غير موافق بشدة □	غير موافق □	محايد □	موافق □	موافق بشدة □
27	أعتقد أن تكلفة المبادلات المالية التي تتطلب تبادل البيانات مع الفروع و البنوك الأخرى قد انخفضت.	غير موافق بشدة □	غير موافق □	محايد □	موافق □	موافق بشدة □
28	أعتقد أن التكاليف الإدارية التي تتطلب تبادل البيانات مع الفروع و البنوك الأخرى قد انخفضت.	غير موافق بشدة □	غير موافق □	محايد □	موافق □	موافق بشدة □
29	ازدادت مكانة البنك التنافسية المتعلقة بانجاز المعاملات التي تتطلب تبادل البيانات مع الفروع و البنوك الأخرى.	غير موافق بشدة □	غير موافق □	محايد □	موافق □	موافق بشدة □
30	أعتقد أن تطبيق تبادل البيانات الإلكتروني يزيد من رضا العملاء.	غير موافق بشدة □	غير موافق □	محايد □	موافق □	موافق بشدة □
31	أعتقد أن تبادل البيانات الالكتروني يساعد البنك على الاحتفاظ بعملائه.	غير موافق بشدة □	غير موافق □	محايد □	موافق □	موافق بشدة □

شكرا جزيلا لتعاونكم معنا

Appendix (VII)

Judiciary group

Judiciary group

1	Prof. Nidal AL-hawamdeh	Mu'tah University
2	Dr. Faisal M. Shawawreh	Mu'tah University
3	Dr. Motassim Al-Majali	Mu'tah University
4	Dr. Fahd Alkhateeb	Mu'tah University
5	Dr. Samer AL- Mohammad	Mu'tah University
6	Dr. Fayrouz AL-Dmour	Mu'tah University
7	Dr. Rasha Dayaet	Mu'tah University
8	Dr. Raid. M. AL-Adaileh	Mu'tah University
9	Prof. Basheer Zoubi, Professor	Mu'tah University
10	Dr. Walaa Al-Jaf	Mu'tah University
11	Dr. Bilal Sakarneh	Al Isra Private University
12	Dr. Hamid Athaee	Azaytona University